

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
SPECIAL AIRWORTHINESS CERTIFICATE

A	CATEGORY/DESIGNATION EXPERIMENTAL (UNMANNED AIRCRAFT)	
	PURPOSE Research & Development, Mkt. Survey, Crew Training	
B	MANUFACTURER	NAME N/A
		ADDRESS N/A
C	FLIGHT	FROM N/A
		TO N/A
D	N- 828AU	SERIAL NO. AU-028
	BUILDER Aurora Flight Sciences	MODEL GE-50
E	DATE OF ISSUANCE January 29, 2009	EXPIRY January 28, 2010
	OPERATING LIMITATIONS DATED 01/29/09	ARE PART OF THIS CERTIFICATE
	SIGNATURE OF FAA REPRESENTATIVE <i>Henry K. Cooper</i>	DESIGNATION OR OFFICE NO. ANE-MIDO-44
	Henry K. Cooper	

Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE TITLE 14, CODE OF FEDERAL REGULATIONS (CFR).

A	This airworthiness certificate is issued under the authority of Public Law 104-6, 49 United States Code (USC) 44704 and Title 14 Code of Federal Regulations (CFR).
B	The airworthiness certificate authorizes the manufacturer named on the reverse side to conduct production flight tests, and only production flight tests, of aircraft registered in his name. No person may conduct production flight tests under this certificate: (1) Carrying persons or property for compensation or hire; and/or (2) Carrying persons not essential to the purpose of the flight.
C	This airworthiness certificate authorizes the flight specified on the reverse side for the purpose shown in Block A.
D	This airworthiness certificate certifies that as of the date of issuance, the aircraft to which issued has been inspected and found to meet the requirements of the applicable CFR. The aircraft does not meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention On International Civil Aviation. No person may operate the aircraft described on the reverse side: (1) except in accordance with the applicable CFR and in accordance with conditions and limitations which may be prescribed by the Administrator as part of this certificate; (2) over any foreign country without the special permission of that country.
E	Unless sooner surrendered, suspended, or revoked, this airworthiness certificate is effective for the duration and under the conditions prescribed in 14 CFR, Part 21, Section 21.181 or 21.217.



New Cumberland Manufacturing Inspection District Office
Bldg. 201, Room 102, 400 Airport Drive
New Cumberland, PA 17070-3419

CANCELLED

Operating Limitations
Experimental: Research and Development, Market Survey,
and/or Crew Training

Registered Owner Name: AURORA FLIGHT SCIENCES	Aircraft Builder: AURORA FLIGHT SCIENCES
Registered Owner Address: 9950 Wakemann Drive Manassas, VA 20110	Year Manufactured: 2006
Aircraft Description: Ducted Fan Vertical Take-Off and Landing	Aircraft Serial Number: AU-028
Aircraft Registration: N828AU	Aircraft Model Designation: GoldenEye 50 (GE-50)
	Engine Model: Desert Aircraft DA-50-R

The following conditions and limitations apply to all unmanned aircraft system (UAS) flight operations for the Aurora GE-50 while operating in the National Airspace System (NAS).

1. General Information.

a. Integrated system. For the purposes of this special airworthiness certificate and operating limitations, the GE-50 operated by Aurora Flight Sciences is considered to be an integrated system. The system is composed of the following:

- (1) Aurora GE-50, serial number: AU-028.
- (2) UAS control station(s), that is, fixed, mobile, ground-based, or airborne.
- (3) Telemetry, launch, and recovery equipment.
- (4) Communications and navigation equipment, including ground and/or air equipment used for command and control of the Aurora GE-50.

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(5) Equipment on the ground and in the air used for communication with the chase aircraft, other members of the flight crew, observers, air traffic control (ATC), and other users of the NAS.

b. Compliance with 14 CFR part 61 (Certification: Pilots, Flight Instructors, and Ground Instructors) and part 91 (General Operating and Flight Rules). Unless otherwise specified in this document, the UA pilot-in-command (PIC) and Aurora Flight Sciences must comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91.

c. Operational requirements.

(1) No person may operate this UAS for other than the purpose of research and development, market survey, and/or crew training, to accomplish the flight operation outlined in Aurora Flight Sciences program letter dated 01/12/09, which describes compliance with § 21.193(d), Experimental certificates: General, and has been made available to the UA PIC.

(2) This UAS must be operated in accordance with applicable air traffic and general operating rules of part 91 and all additional limitations herein prescribed under the provisions of § 91.319(i), Aircraft having experimental certificates: Operating limitations.

(3) Aurora Flight Sciences must accumulate at least 50 flight hours under its experimental airworthiness certificate before customer crew training is permitted, in accordance with § 21.195(d), Experimental certificates: Aircraft to be used for market surveys, sales demonstrations, and customer crew training.

d. UA condition. The UA PIC must determine that the UA is in a condition for safe operation and in a configuration appropriate for the purpose of the intended flight.

e. Multiple-purpose operations. When changing between operating purposes of a multiple purpose certificate, the operator must determine that the aircraft is in a condition for safe operation and appropriate for the purpose intended. A record entry will be made by an appropriately rated person (that is, an individual authorized by the applicant and acceptable to the FAA) to document that finding in the maintenance records.

f. Operation exceptions. No person may operate this UA to carry property for compensation or hire (§ 91.319(a)(2)).

g. UA markings.

(1) This UA must be marked with its U.S. registration number in accordance with part 45 or alternative marking approval issued by the FAA Production and Airworthiness Division (AIR-200).

(2) This UA must display the word *Experimental* in accordance with § 45.23(b), Display of marks, unless otherwise granted an exemption from this requirement.

h. Required documentation. Before conducting the initial flight of the GE-50, Aurora Flight Sciences, must forward a copy of the GE-50 program letter, special airworthiness certificate, and operating limitations to the following personnel:

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(1) Peter Acevedo, FAA Air Traffic Representative, Eastern Service Center, System Support, 1701 Columbia Ave, College Park, GA 30337, telephone (404) 305-5598, email peter.k.acevedo@faa.gov.

(2) Richard Posey, Aviation Safety Inspector, Production and Airworthiness Division, AIR-200, 800 Independence Ave, SW, Washington, DC 20591, telephone (202) 267-9538, email richard.posey@faa.gov.

i. Change in registrant address. Section 47.45, Change of address, requires that the FAA Aircraft Registry be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by providing AC Form 8050-1, Aircraft Registration Application, to the FAA Aircraft Registration Branch (AFS-750) in Oklahoma City, Oklahoma.

j. Certificate display and manual availability. The airworthiness and registration certificates must be displayed, and the aircraft flight manual must be available to the pilot, as prescribed by the applicable sections of 14 CFR, or as prescribed by an exemption granted in accordance with 14 CFR part 11, General Rulemaking Procedures to Aurora Flight Sciences.

2. Program Letter. The Aurora Flight Sciences GE-50 program letter, dated 01/12/09, will be used as a basis for determining the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions of this document.

3. Authorized Flight Operations Area.

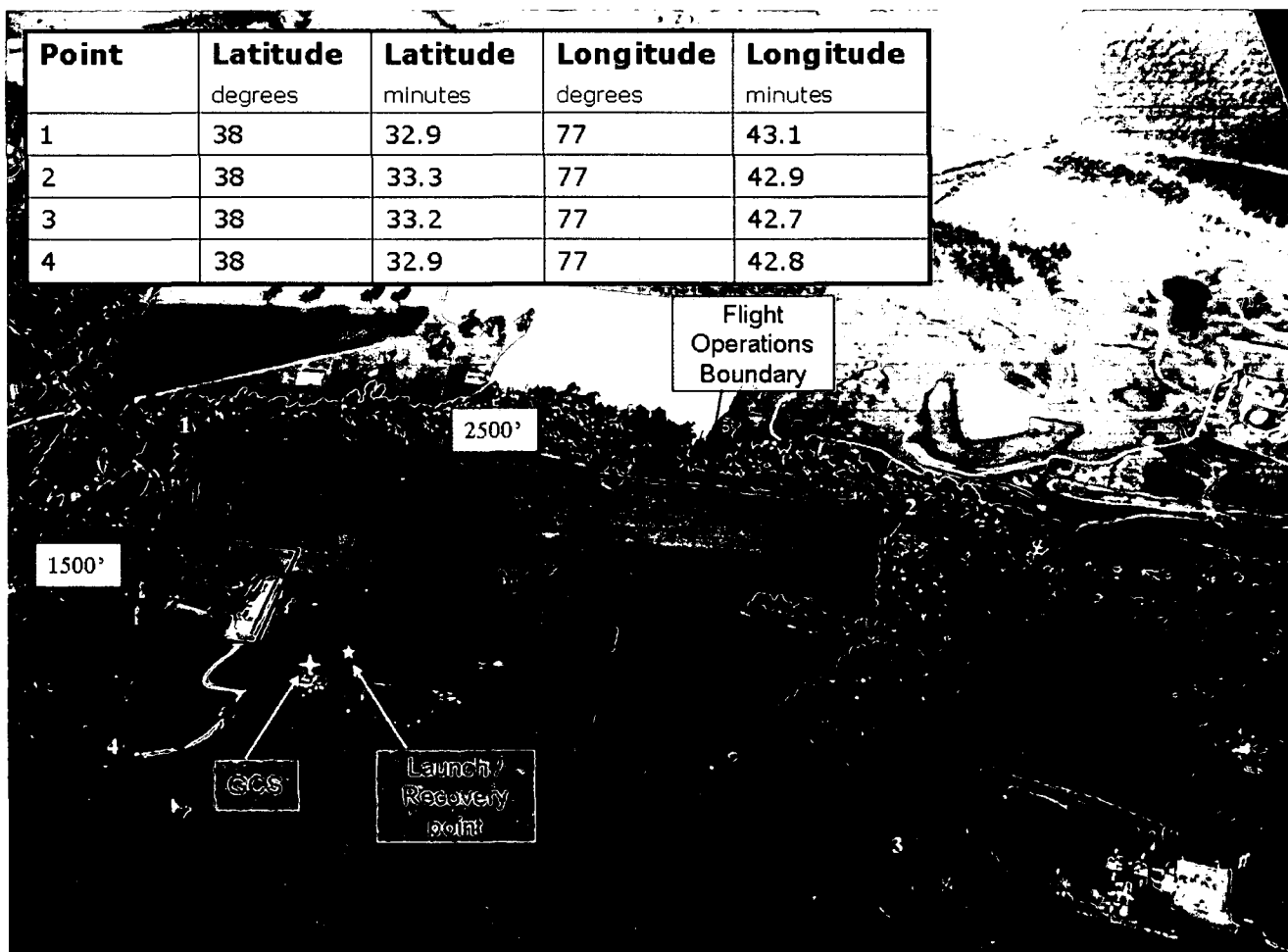
a. Description of the authorized flight operations area. The base of operations for the UA shall be:

Flying Circus Aerodrome (3VA3)
5414 Ritchie Rd
Bealeton, VA 22712

b. Flight test area. The flight test operations area authorized for the UA at Flying Circus Aerodrome (3VA3) is graphically depicted below. No flights shall exceed 400 feet AGL.

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Point	Latitude degrees	Latitude minutes	Longitude degrees	Longitude minutes
1	38	32.9	77	43.1
2	38	33.3	77	42.9
3	38	33.2	77	42.7
4	38	32.9	77	42.8



c. Authorized flight times and conditions. All flight operations must be conducted during daylight hours under visual flight rules (VFR).

d. Notification. Aurora shall notify the airport manager/owner, prior each operation, for coordination with any other potential activity in the vicinity.

e. Criteria for remaining in the flight test area. The UAS PIC must ensure all UA flight operations remain within the lateral and vertical boundaries of the flight test area. Furthermore, the UAS PIC must take into account all factors that may affect the capability of the UA to remain within the flight test area. This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

f. Incident/accident reporting. Any incident/accident and any flight operation that transgresses the lateral or vertical boundaries of the flight test area or any restricted airspace must be reported to the FAA within 24 hours. This information must be reported to the Unmanned Aircraft Program Office, AIR-160. AIR-160 can be reached by telephone at 202-385-4636 and fax at 202-385-4651. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.nts.gov. Further flight operations must not be conducted until the incident is

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reviewed by AIR-160 and authorization to resume operations is provided to Aurora Flight Sciences.

4. UA Pilots and Observers.

a. UA PIC roles and responsibilities.

- (1) The UA PIC must perform crew duties for only one UA at a time.
- (2) All flight operations must have a designated UA PIC. The UA PIC has responsibility over each flight conducted and is accountable for the UA flight operation.
- (3) The UA PIC is responsible for the safety of the UA as well as persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground.
- (4) The UA PIC must avoid densely populated areas (§ 91.319) and exercise increased vigilance when operating within or in the vicinity of published airway boundaries.

b. UA PIC certification and ratings requirements.

- (1) The UA PIC must hold and be in possession of, at a minimum, an FAA private pilot certificate, with either an airplane, rotorcraft, or powered-lift category; and single- or multiengine class ratings, appropriate to the type of UA being operated.
- (2) The UA PIC must have and be in possession of a valid second-class (or higher) airman medical certificate issued under 14 CFR part 67, Medical Standards and Certification.

c. UA PIC currency, flight review, and training.

- (1) No person may act as pilot in command of an unmanned aircraft unless that person has made at least three takeoffs and three landings in manned aircraft within the preceding 90 days acting as the sole manipulator of the flight controls.
- (2) The UA PIC must have a flight review in manned aircraft every 24 calendar months in accordance with § 61.56, Flight review.
- (3) The UA PIC must maintain currency in unmanned aircraft in accordance with Aurora Flight Sciences company procedures.
- (4) The UA PIC must have a flight review in unmanned aircraft every 24 calendar months in accordance with Aurora Flight Sciences procedures.
- (5) All UA PIC's must have successfully completed applicable Aurora Flight Sciences training for the UAS.

d. Supplemental UA pilot roles and responsibilities.

- (1) Any additional UA pilot(s) assigned to a crew station during UA flight operations will be considered a supplemental UA pilot.
- (2) A supplemental UA pilot assists the PIC in the operation of the UA and may do so at the same or a different control station as the PIC. The UA PIC will have operational override capability over any supplemental UA pilots, regardless of position.
- (3) A supplemental UA pilot must perform crew duties for only one UA at a time.

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e. Supplemental UA pilot certification. The supplemental UA PIC need not be a certificated pilot, but must have successfully completed a recognized private pilot ground school program.

f. Supplemental UA pilot currency, flight review, and training.

(1) All UA pilots must maintain currency in unmanned aircraft in accordance with Aurora Flight Sciences company procedures.

(2) All UA pilots must have a flight review in unmanned aircraft every 24 calendar months in accordance with Aurora Flight Sciences procedures.

(3) All UA pilots must have successfully completed applicable Aurora Flight Sciences training for the UAS.

g. Observer roles and responsibilities. The task of the observer is to provide the UA PIC(s) with instructions to maneuver the UA clear of any potential collision with other traffic. To satisfy these requirements:

(1) The observer must perform crew duties for only one UA at a time.

(2) At no time will the observer permit the UA to operate beyond the line-of-sight necessary to ensure maneuvering information can be reliably determined.

(3) At no time will the observer conduct his/her duties more than 1300 feet laterally or 400 feet vertically from the UA.

(4) An observer must maintain continuous visual contact with the UA to discern UA attitude and trajectory in relation to conflicting traffic.

(5) An observer may be positioned in a chase aircraft. When a chase aircraft is used, it must maintain a reasonable proximity, and must position itself relative to the UA to reduce the hazard of collision in accordance with § 91.111, Operating near other aircraft. When the observer is located in a chase aircraft, the observer's duties must be dedicated to the task of observation only. Concurrent duty as pilot of the chase aircraft is not authorized.

(6) Observers must continually scan the airspace for other aircraft that pose a potential conflict.

(7) All flight operations conducted in the flight test area must have an observer to perform traffic avoidance and visual observation to fulfill the see-and-avoid requirement of § 91.113, Right-of-way rules: Except water operations.

h. Observer certification.

(1) All observers must either hold, at a minimum, an FAA private pilot license or military equivalent, or must have successfully completed specific observer training acceptable to the FAA. An observer does not require currency as a pilot.

(2) All observers must have in their possession a valid second-class (or higher) airman medical certificate issued under part 67.

i. Observer training.

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(1) All observers must be thoroughly trained, be familiar with, and possess operational experience with the equipment being used. Such training is necessary for observation and detection of other aircraft for collision avoidance purposes as outlined in Aurora Flight Sciences program letter.

(2) All observers must have successfully completed applicable Aurora Flight Sciences training for the UAS.

5. Equipage. The GE-50 Ground Control Station shall be equipped with two-way communications equipment allowing for communications between the UA pilot and Air Traffic Control.

6. Communications.

a. Before UA flights. Before conducting operations, the frequency spectrum used for operation and control of the UA must be approved by the Federal Communications Commission or other appropriate government oversight agency.

b. During UA flights.

(1) Appropriate air traffic frequencies must be monitored during flight operations.

(2) All UA positions must maintain two-way communications with each other during all operations. If unable to maintain two-way communication, the UA PIC will expeditiously return the UA to its base of operations while remaining within the flight test area and conclude the flight operation.

7. Flight Conditions.

a. Daylight operations. All flight operations must be conducted during daylight hours in visual meteorological conditions (VMC), including cloud clearance minimums as specified in § 91.155, Basic VFR weather minimums. Flight operation in instrument meteorological conditions (IMC) is not permitted.

b. Prohibitions.

(1) The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight. (See § 91.303, Aerobatic flight.) If aerobatic flight is anticipated, it must be thoroughly discussed during the system review and be appropriately described in the operating limitations.

(2) Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.

(3) Each UA must be operated by only one control station at a time. A control station may not be used to operate multiple UAS.

c. Notice to airman. Aurora Flight Sciences must request the issuance of a Notice to Airman (NOTAM) through the local Automated Flight Service Station at least 24 hours before flight operation.

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8. Flight Termination and Lost Link Procedures.

a. Flight termination. In accordance with Aurora Flight Sciences program letter, dated 01/12/09, flight termination must be initiated at any point that safe operation of the UA cannot be maintained or if hazard to persons or property is imminent.

b. Lost link procedures. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the flight test area. The chase aircraft or observer, all other UAS control stations, and the appropriate ATC facility will be immediately notified of the lost link condition and the expected UA response.

9. Maintenance and Inspection.

a. General requirements. The UAS must not be operated unless it is inspected and maintained in accordance with the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A, both dated July 26, 2007, or later accepted FAA revision. Aurora Flight Sciences must establish and maintain aircraft maintenance records (see paragraph 10(d) below).

b. Inspections. No person may operate this UAS within the preceding 12 calendar months unless it has had a condition inspection performed according to the FAA-accepted Aurora Flight Sciences GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A, both dated July 26, 2007, and was found to be in a condition for safe operation. This inspection will be recorded in the UAS maintenance records as described in paragraph 10(d) below.

c. Authorized inspectors. Only those individuals trained and authorized by Aurora Flight Sciences and acceptable to the FAA may perform the inspections and maintenance required by these operating limitations.

d. Maintenance and inspection records. Maintenance and inspections of the UAS must be recorded in the UAS maintenance records. The following information must be recorded:

(1) Maintenance record entries must include a description of the work performed, the date of completion for the work, the UAS's total time-in-service, and the name and signature of the person performing the work.

(2) Inspection entries must contain the following, or a similarly worded, statement: *I certify that this UAS was inspected on (date), in accordance with the scope and detail of the (applicant name) Inspection and Maintenance Program, and was found to be in a condition for safe operation.*

(3) UAS instruments and equipment required to be installed must be inspected and maintained in accordance with the requirements of the Aurora Flight Sciences FAA-accepted Aurora Flight Sciences GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A, both dated July 26, 2007. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

10. Information Reporting. Aurora Flight Sciences shall provide the following information to Donald E Grampp@faa.gov, and AIR-200 on a monthly basis:

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- a. Number of flights conducted under this certificate.
- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware or software).
- d. Deviations from ATC instructions.
- e. Unintended entry into lost link flight mode that results in a course change.

11. Revisions and Other Provisions.

a. Experimental certificates, program letters, and operating limitations. The experimental certificate, FAA-accepted Aurora Flight Sciences program letter, and operating limitations cannot be reissued, renewed, or revised without application being made to the New Cumberland Manufacturing Inspection District Office (MIDO), in coordination with AIR-200. AIR-200 will be responsible for FAA Headquarters internal coordination with the Aircraft Certification Service, Flight Standards Service, Air Traffic Organization, Office of the Chief Council, and Office of Rulemaking.

b. Certificates of waiver or authorization. Aurora Flight Sciences shall immediately notify the Production and Airworthiness Division, AIR-200, and the New Cumberland MIDO, if there is any plan for requesting a Certificate of Authorization or Waiver (COA) for UAS operations during the time the experimental certificate is in effect. An entry in the aircraft logbook is required to document that the aircraft flight authority has been changed from the experimental certificate to COA. When COA operations are concluded and the aircraft resumes flying under the experimental certificate, a record entry will be made in the aircraft logbook by an appropriately rated person to document that the aircraft is in a condition for safe operation and appropriately configured.

c. Amendments and cancellations. The provisions and limitations annotated in this operational approval may be amended or cancelled at any time as deemed necessary by the FAA.

d. Reviews of revisions. All revisions to Aurora FAA-accepted GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision must be reviewed and accepted by the Washington Flight Standards District Office.

12. UAS Modifications.

a. Software and system changes. All software and system changes will be documented as part of the normal maintenance procedures and will be available for inspection. All software and system changes shall be inspected and approved per Aurora's maintenance procedures. All software changes to the aircraft and control station are categorized as major changes, and must be provided in summary form at the time they are incorporated.

b. Major modifications. All major modifications, whether performed under the experimental certificate, COA, or other authorizations, that could potentially affect the safe operation of the system, must be documented and provided to the FAA before operating the aircraft under this certificate. Major modifications incorporated under COA or other

authorization needs to be provided only if the aircraft is flown under these authorizations during the effective period of the experimental certificate.

c. Submission of modifications. All information requested must be provided to AIR-200.

End of Limitations



Henry K. Cooper
Aviation Safety Inspector
New Cumberland Manufacturing Inspection District
Office Bldg. 201, Room 102, 400 Airport Drive
New Cumberland, PA 17070-3419

1/29/09
Date:

I certify that I have read and understand the operating limitations and conditions that are a part of the special airworthiness certificate, FAA Form 8130-7, issued on January 29, 2009, for the purposes of research and development, market survey, and/or crew training.

This special airworthiness certificate is issued for Aurora Flight Sciences GE-50, serial number AU-028, registration number N828AU.



Applicant (signature)

1/29/09
Date:

Name: Peter Cooke

Title: GoldenEye 50 Chief Engineer

Company: Aurora Flight Sciences

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Date: 12 Oct 2010

Mr Henry K. Cooper
Senior Aviation Safety Inspector
Manufacturing Inspection District Office -44
400 Airport Drive, Bldg. 201, Rm. 102
New Cumberland, PA 17070-3419

Dear Mr Cooper,

In response to your letter dated October 4, 2010 regarding the status of GoldenEye 50 UAS Experimental Airworthiness Certificates, Aurora Flight Sciences will not be renewing these certificates at this time. As such, the requested FAA Form 8130-7 and operating limitations for the aircraft in question are enclosed.

Please contact me if you have any questions regarding this or any of our other UAS activities.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas Washington", with a stylized flourish at the end.

Thomas Washington
Director of UAS Operations
Aurora Flight Sciences
(703) 530 – 1953
(571) 229 – 2285
twashington@aurora.aero

FAA
AME-MIDO-44
OCT 18 2010
HC

FAA FORM 8130-6, APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE

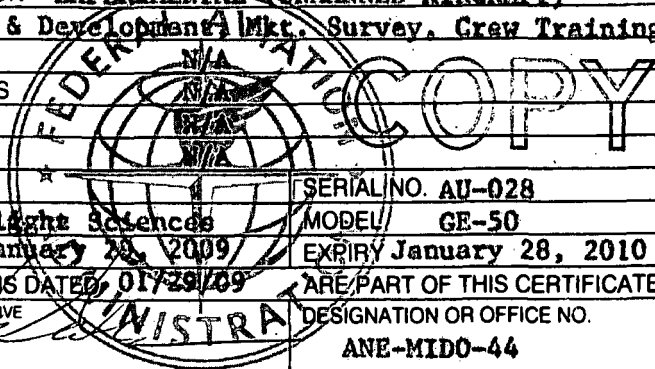
Form Approved O.M.B. No. 2120-0018
12/31/2010

 U.S. Department of Transportation Federal Aviation Administration		APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE		INSTRUCTIONS - Print or type. Do not write in shaded areas; these are for FAA use only. Submit original only to an authorized FAA Representative. If additional space is required, use attachment. For special flight permits complete Sections II, VI and VII as applicable.																																																																																																																																																																																																																																														
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VI. PRODUCTION FLIGHT TESTING	A. MANUFACTURER			
	NAME		ADDRESS	
	B. PRODUCTION BASIS <i>(Check applicable item)</i>			
	<input type="checkbox"/>	PRODUCTION CERTIFICATE <i>(Give production certificate number)</i> _____		
	<input type="checkbox"/>	TYPE CERTIFICATE ONLY		
	<input type="checkbox"/>	APPROVED PRODUCTION INSPECTION SYSTEM		
C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS				
DATE OF APPLICATION		NAME AND TITLE <i>(Print or Type)</i>		SIGNATURE
VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST	A. DESCRIPTION OF AIRCRAFT			
	REGISTERED OWNER		ADDRESS	
	BUILDER <i>(Make)</i>		MODEL	
	SERIAL NUMBER		REGISTRATION MARK	
	B. DESCRIPTION OF FLIGHT			
	FROM		TO	
	VIA		DEPARTURE DATE	DURATION
	C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT			
	<input type="checkbox"/>	PILOT	<input type="checkbox"/>	CO-PILOT
	<input type="checkbox"/>	FLIGHT ENGINEER	<input type="checkbox"/>	OTHER <i>(Specify)</i>
	D. THE AIRCRAFT DOES NOT MEET THE APPLICABLE AIRWORTHINESS REQUIREMENTS AS FOLLOWS:			
	E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED NECESSARY FOR SAFE OPERATION: <i>(Use attachment if necessary)</i>			
F. CERTIFICATION – I hereby certify that I am the registered owner (or his agent) of the aircraft described above; that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 <u>et seq.</u> and applicable Federal Aviation Regulations; and that the aircraft has been inspected and is safe for the flight described.				
DATE		NAME AND TITLE <i>(Print or Type)</i>		SIGNATURE
VIII. AIRWORTHINESS DOCUMENTATION (FAA/DESIGNEE use only)	<input checked="" type="checkbox"/>	A. Operating Limitations and Markings in Compliance with 14 CFR Section 91.9, as applicable.		G. Statement of Conformity, FAA Form 8130-9 <i>(Attach when required)</i>
	<input checked="" type="checkbox"/>	B. Current Operating Limitations Attached		H. Foreign Airworthiness Certification for Import Aircraft <i>(Attach when required)</i>
	<input checked="" type="checkbox"/>	C. Data, Drawings, Photographs, etc. <i>(Attach when required)</i>		I. Previous Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>21.191a,c,f</u> CAR _____ <i>(Original Attached)</i>
	<input checked="" type="checkbox"/>	D. Current Weight and Balance information Available in Aircraft		
	<input type="checkbox"/>	E. Major Repair and Alteration, FAA Form 337 <i>(Attach when required)</i>		J. Current Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>21.191a,c,f</u> _____ <i>(Copy Attached)</i>
	<input checked="" type="checkbox"/>	F. This inspection Recorded in Aircraft Records		K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 <i>(Attach when required)</i>

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
SPECIAL AIRWORTHINESS CERTIFICATE

A	CATEGORY/DESIGNATION EXPERIMENTAL (UNMANNED AIRCRAFT)	
	PURPOSE Research & Development, Mkt. Survey, Crew Training	
B	MANU-FACTURER	NAME N/A
		ADDRESS N/A
C	FLIGHT	FROM N/A
		TO N/A
D	N- 828AU	SERIAL NO. AU-028
	BUILDER Aurora Flight Sciences	MODEL GE-50
E	DATE OF ISSUANCE January 28, 2009	EXPIRY January 28, 2010
	OPERATING LIMITATIONS DATED 01/29/09 ARE PART OF THIS CERTIFICATE	
	SIGNATURE OF FAA REPRESENTATIVE Henry K. Cooper	DESIGNATION OR OFFICE NO. ANE-MIDO-44



Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE TITLE 14, CODE OF FEDERAL REGULATIONS (CFR).

A	This airworthiness certificate is issued under the authority of Public Law 104-6, 49 United States Code (USC) 44704 and Title 14 Code of Federal Regulations (CFR).
B	The airworthiness certificate authorizes the manufacturer named on the reverse side to conduct production flight tests, and only production flight tests, of aircraft registered in his name. No person may conduct production flight tests under this certificate: (1) Carrying persons or property for compensation or hire; and/or (2) Carrying persons not essential to the purpose of the flight.
C	This airworthiness certificate authorizes the flight specified on the reverse side for the purpose shown in Block A.
D	This airworthiness certificate certifies that as of the date of issuance, the aircraft to which issued has been inspected and found to meet the requirements of the applicable CFR. The aircraft does not meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention On International Civil Aviation. No person may operate the aircraft described on the reverse side: (1) except in accordance with the applicable CFR and in accordance with conditions and limitations which may be prescribed by the Administrator as part of this certificate; (2) over any foreign country without the special permission of that country.
E	Unless sooner surrendered, suspended, or revoked, this airworthiness certificate is effective for the duration and under the conditions prescribed in 14 CFR, Part 21, Section 21.181 or 21.217.

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

SPECIAL AIRWORTHINESS CERTIFICATE **JAN 29 2008**

A	CATEGORY/DESIGNATION EXPERIMENTAL (UNMANNED AIRCRAFT)	
	PURPOSE Research & Development/Mkt. Survey/Crew Training	
B	MANUFACTURER	NAME N/A
		ADDRESS N/A
C	FLIGHT	FROM N/A
		TO N/A
D	N- 828AU	SERIAL NO. AU-028
	BUILDER Aurora Flight Sciences	MODEL GE-50
E	DATE OF ISSUANCE February 1, 2008 (A)	EXPIRY January 31, 2009
	OPERATING LIMITATIONS DATED 2/1/2008	ARE PART OF THIS CERTIFICATE
	SIGNATURE OF FAA REPRESENTATIVE <i>Henry K. Cooper</i> Henry K. Cooper	DESIGNATION OR OFFICE NO. ANE-MIDO-44

Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE TITLE 14, CODE OF FEDERAL REGULATIONS (CFR).

A	This airworthiness certificate is issued under the authority of Public Law 104-6, 49 United States Code, (USC) 44704 and Title 14 Code of Federal Regulations (CFR).
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E	Unless sooner surrendered, suspended, or revoked, this airworthiness certificate is effective for the duration and under the conditions prescribed in 14 CFR, Part 21, Section 21.181 or 21.217.



New Cumberland Manufacturing Inspection District Office
Bldg. 201, Room 102, 400 Airport Drive
New Cumberland, PA 17070-3419

COPY

Operating Limitations
Experimental: Research and Development, Market Survey,
and/or Crew Training

Registered Owner Name: AURORA FLIGHT SCIENCES	Aircraft Builder: AURORA FLIGHT SCIENCES
Registered Owner Address: 9950 Wakemann Drive Manassas, VA 20110	Year Manufactured: 2006
Aircraft Description: Ducted Fan Vertical Take-Off and Landing	Aircraft Serial Number: AU-028
Aircraft Registration: N828AU	Aircraft Model Designation: GoldenEye 50 (GE-50)
	Engine Model: Desert Aircraft DA-50-R

The following conditions and limitations apply to all unmanned aircraft system (UAS) flight operations for the Aurora GE-50 while operating in the National Airspace System (NAS).

1. General Information.

a. Integrated system. For the purposes of this special airworthiness certificate and operating limitations, the GE-50 operated by Aurora Flight Sciences is considered to be an integrated system. The system is composed of the following:

- (1) Aurora GE-50, serial number: AU-028.
- (2) UAS control station(s), that is, fixed, mobile, ground-based, or airborne.
- (3) Telemetry, launch, and recovery equipment.
- (4) Communications and navigation equipment, including ground and/or air equipment used for command and control of the Aurora GE-50.

(5) Equipment on the ground and in the air used for communication with the chase aircraft, other members of the flight crew, observers, air traffic control (ATC), and other users of the NAS.

b. Compliance with 14 CFR part 61 (Certification: Pilots, Flight Instructors, and Ground Instructors) and part 91 (General Operating and Flight Rules). Unless otherwise specified in this document, the UA pilot-in-command (PIC) and Aurora Flight Sciences must comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91.

c. Operational requirements.

(1) No person may operate this UAS for other than the purpose of research and development, market survey, and/or crew training, to accomplish the flight operation outlined in Aurora Flight Sciences program letter dated 01/12/09, which describes compliance with § 21.193(d), Experimental certificates: General, and has been made available to the UA PIC.

(2) This UAS must be operated in accordance with applicable air traffic and general operating rules of part 91 and all additional limitations herein prescribed under the provisions of § 91.319(i), Aircraft having experimental certificates: Operating limitations.

(3) Aurora Flight Sciences must accumulate at least 50 flight hours under its experimental airworthiness certificate before customer crew training is permitted, in accordance with § 21.195(d), Experimental certificates: Aircraft to be used for market surveys, sales demonstrations, and customer crew training.

d. UA condition. The UA PIC must determine that the UA is in a condition for safe operation and in a configuration appropriate for the purpose of the intended flight.

e. Multiple-purpose operations. When changing between operating purposes of a multiple purpose certificate, the operator must determine that the aircraft is in a condition for safe operation and appropriate for the purpose intended. A record entry will be made by an appropriately rated person (that is, an individual authorized by the applicant and acceptable to the FAA) to document that finding in the maintenance records.

f. Operation exceptions. No person may operate this UA to carry property for compensation or hire (§ 91.319(a)(2)).

g. UA markings.

(1) This UA must be marked with its U.S. registration number in accordance with part 45 or alternative marking approval issued by the FAA Production and Airworthiness Division (AIR-200).

(2) This UA must display the word *Experimental* in accordance with § 45.23(b), Display of marks, unless otherwise granted an exemption from this requirement.

h. Required documentation. Before conducting the initial flight of the GE-50, Aurora Flight Sciences, must forward a copy of the GE-50 program letter, special airworthiness certificate, and operating limitations to the following personnel:

(1) Peter Acevedo, FAA Air Traffic Representative, Eastern Service Center, System Support, 1701 Columbia Ave, College Park, GA 30337, telephone (404) 305-5598, email peter.k.acevedo@faa.gov.

(2) Richard Posey, Aviation Safety Inspector, Production and Airworthiness Division, AIR-200, 800 Independence Ave, SW, Washington, DC 20591, telephone (202) 267-9538, email richard.posey@faa.gov.

i. Change in registrant address. Section 47.45, Change of address, requires that the FAA Aircraft Registry be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by providing AC Form 8050-1, Aircraft Registration Application, to the FAA Aircraft Registration Branch (AFS-750) in Oklahoma City, Oklahoma.

j. Certificate display and manual availability. The airworthiness and registration certificates must be displayed, and the aircraft flight manual must be available to the pilot, as prescribed by the applicable sections of 14 CFR, or as prescribed by an exemption granted in accordance with 14 CFR part 11, General Rulemaking Procedures to Aurora Flight Sciences.

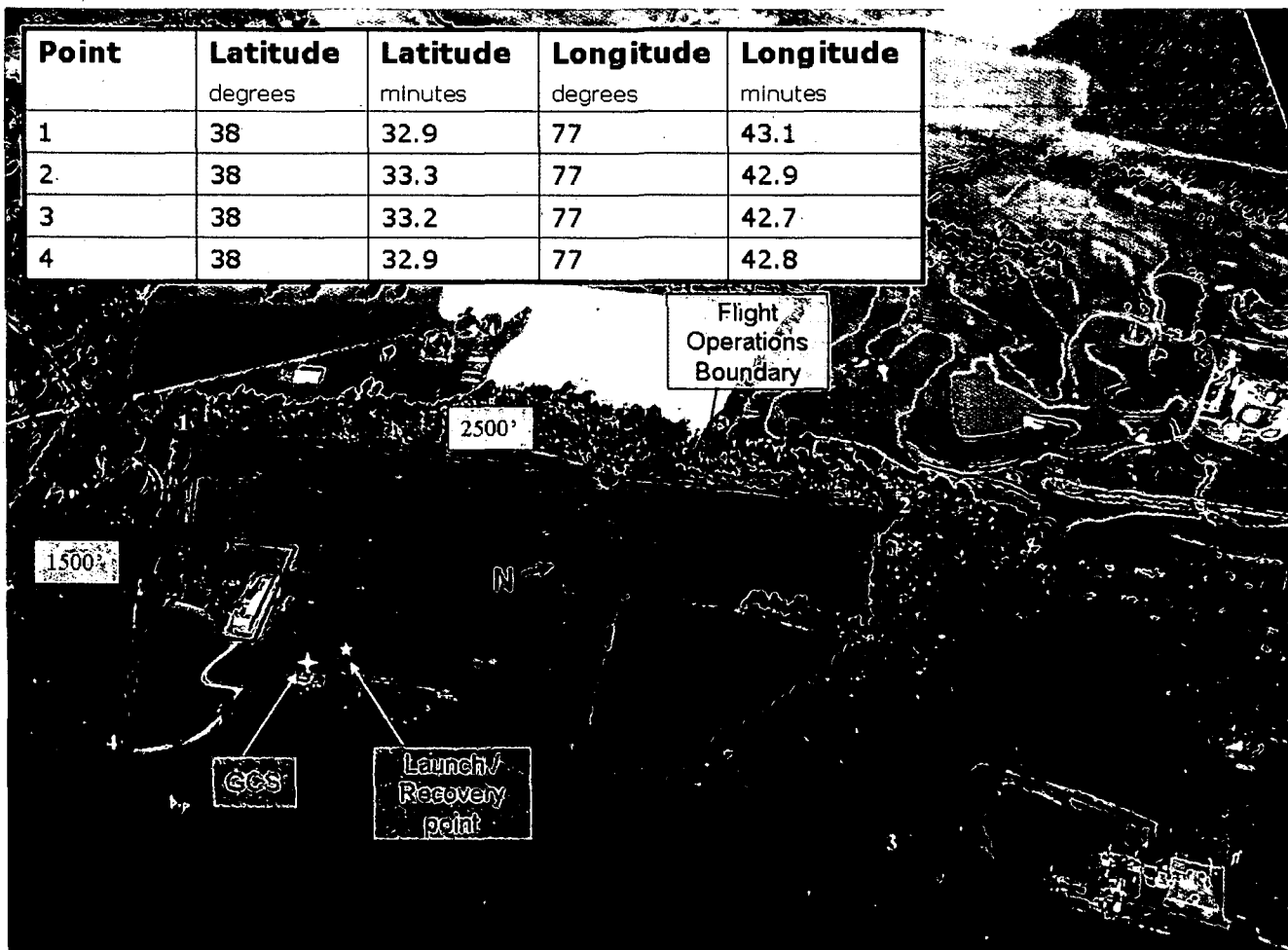
2. Program Letter. The Aurora Flight Sciences GE-50 program letter, dated 01/12/09, will be used as a basis for determining the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions of this document.

3. Authorized Flight Operations Area.

a. Description of the authorized flight operations area. The base of operations for the UA shall be:

Flying Circus Aerodrome (3VA3)
5414 Ritchie Rd
Bealeton, VA 22712

b. Flight test area. The flight test operations area authorized for the UA at Flying Circus Aerodrome (3VA3) is graphically depicted below. No flights shall exceed 400 feet AGL.



c. Authorized flight times and conditions. All flight operations must be conducted during daylight hours under visual flight rules (VFR).

d. Notification. Aurora shall notify the airport manager/owner, prior each operation, for coordination with any other potential activity in the vicinity.

e. Criteria for remaining in the flight test area. The UAS PIC must ensure all UA flight operations remain within the lateral and vertical boundaries of the flight test area. Furthermore, the UAS PIC must take into account all factors that may affect the capability of the UA to remain within the flight test area. This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

f. Incident/accident reporting. Any incident/accident and any flight operation that transgresses the lateral or vertical boundaries of the flight test area or any restricted airspace must be reported to the FAA within 24 hours. This information must be reported to the Unmanned Aircraft Program Office, AIR-160. AIR-160 can be reached by telephone at 202-385-4636 and fax at 202-385-4651. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.nts.gov. Further flight operations must not be conducted until the incident is

reviewed by AIR-160 and authorization to resume operations is provided to Aurora Flight Sciences.

4. UA Pilots and Observers.

a. UA PIC roles and responsibilities.

- (1) The UA PIC must perform crew duties for only one UA at a time.
- (2) All flight operations must have a designated UA PIC. The UA PIC has responsibility over each flight conducted and is accountable for the UA flight operation.
- (3) The UA PIC is responsible for the safety of the UA as well as persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground.
- (4) The UA PIC must avoid densely populated areas (§ 91.319) and exercise increased vigilance when operating within or in the vicinity of published airway boundaries.

b. UA PIC certification and ratings requirements.

- (1) The UA PIC must hold and be in possession of, at a minimum, an FAA private pilot certificate, with either an airplane, rotorcraft, or powered-lift category; and single- or multiengine class ratings, appropriate to the type of UA being operated.
- (2) The UA PIC must have and be in possession of a valid second-class (or higher) airman medical certificate issued under 14 CFR part 67, Medical Standards and Certification.

c. UA PIC currency, flight review, and training.

- (1) No person may act as pilot in command of an unmanned aircraft unless that person has made at least three takeoffs and three landings in manned aircraft within the preceding 90 days acting as the sole manipulator of the flight controls.
- (2) The UA PIC must have a flight review in manned aircraft every 24 calendar months in accordance with § 61.56, Flight review.
- (3) The UA PIC must maintain currency in unmanned aircraft in accordance with Aurora Flight Sciences company procedures.
- (4) The UA PIC must have a flight review in unmanned aircraft every 24 calendar months in accordance with Aurora Flight Sciences procedures.
- (5) All UA PIC's must have successfully completed applicable Aurora Flight Sciences training for the UAS.

d. Supplemental UA pilot roles and responsibilities.

- (1) Any additional UA pilot(s) assigned to a crew station during UA flight operations will be considered a supplemental UA pilot.
- (2) A supplemental UA pilot assists the PIC in the operation of the UA and may do so at the same or a different control station as the PIC. The UA PIC will have operational override capability over any supplemental UA pilots, regardless of position.
- (3) A supplemental UA pilot must perform crew duties for only one UA at a time.

e. Supplemental UA pilot certification. The supplemental UA PIC need not be a certificated pilot, but must have successfully completed a recognized private pilot ground school program.

f. Supplemental UA pilot currency, flight review, and training.

(1) All UA pilots must maintain currency in unmanned aircraft in accordance with Aurora Flight Sciences company procedures.

(2) All UA pilots must have a flight review in unmanned aircraft every 24 calendar months in accordance with Aurora Flight Sciences procedures.

(3) All UA pilots must have successfully completed applicable Aurora Flight Sciences training for the UAS.

g. Observer roles and responsibilities. The task of the observer is to provide the UA PIC(s) with instructions to maneuver the UA clear of any potential collision with other traffic. To satisfy these requirements:

(1) The observer must perform crew duties for only one UA at a time.

(2) At no time will the observer permit the UA to operate beyond the line-of-sight necessary to ensure maneuvering information can be reliably determined.

(3) At no time will the observer conduct his/her duties more than 1300 feet laterally or 400 feet vertically from the UA.

(4) An observer must maintain continuous visual contact with the UA to discern UA attitude and trajectory in relation to conflicting traffic.

(5) An observer may be positioned in a chase aircraft. When a chase aircraft is used, it must maintain a reasonable proximity, and must position itself relative to the UA to reduce the hazard of collision in accordance with § 91.111, Operating near other aircraft. When the observer is located in a chase aircraft, the observer's duties must be dedicated to the task of observation only. Concurrent duty as pilot of the chase aircraft is not authorized.

(6) Observers must continually scan the airspace for other aircraft that pose a potential conflict.

(7) All flight operations conducted in the flight test area must have an observer to perform traffic avoidance and visual observation to fulfill the see-and-avoid requirement of § 91.113, Right-of-way rules: Except water operations.

h. Observer certification.

(1) All observers must either hold, at a minimum, an FAA private pilot license or military equivalent, or must have successfully completed specific observer training acceptable to the FAA. An observer does not require currency as a pilot.

(2) All observers must have in their possession a valid second-class (or higher) airman medical certificate issued under part 67.

i. Observer training.

(1) All observers must be thoroughly trained, be familiar with, and possess operational experience with the equipment being used. Such training is necessary for observation and detection of other aircraft for collision avoidance purposes as outlined in Aurora Flight Sciences program letter.

(2) All observers must have successfully completed applicable Aurora Flight Sciences training for the UAS.

5. Equipage. The GE-50 Ground Control Station shall be equipped with two-way communications equipment allowing for communications between the UA pilot and Air Traffic Control.

6. Communications.

a. Before UA flights. Before conducting operations, the frequency spectrum used for operation and control of the UA must be approved by the Federal Communications Commission or other appropriate government oversight agency.

b. During UA flights.

(1) Appropriate air traffic frequencies must be monitored during flight operations.

(2) All UA positions must maintain two-way communications with each other during all operations. If unable to maintain two-way communication, the UA PIC will expeditiously return the UA to its base of operations while remaining within the flight test area and conclude the flight operation.

7. Flight Conditions.

a. Daylight operations. All flight operations must be conducted during daylight hours in visual meteorological conditions (VMC), including cloud clearance minimums as specified in § 91.155, Basic VFR weather minimums. Flight operation in instrument meteorological conditions (IMC) is not permitted.

b. Prohibitions.

(1) The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight. (See § 91.303, Aerobatic flight.) If aerobatic flight is anticipated, it must be thoroughly discussed during the system review and be appropriately described in the operating limitations.

(2) Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.

(3) Each UA must be operated by only one control station at a time. A control station may not be used to operate multiple UAS.

c. Notice to airman. Aurora Flight Sciences must request the issuance of a Notice to Airman (NOTAM) through the local Automated Flight Service Station at least 24 hours before flight operation.

8. Flight Termination and Lost Link Procedures.

a. Flight termination. In accordance with Aurora Flight Sciences program letter, dated 01/12/09, flight termination must be initiated at any point that safe operation of the UA cannot be maintained or if hazard to persons or property is imminent.

b. Lost link procedures. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the flight test area. The chase aircraft or observer, all other UAS control stations, and the appropriate ATC facility will be immediately notified of the lost link condition and the expected UA response.

9. Maintenance and Inspection.

a. General requirements. The UAS must not be operated unless it is inspected and maintained in accordance with the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A, both dated July 26, 2007, or later accepted FAA revision. Aurora Flight Sciences must establish and maintain aircraft maintenance records (see paragraph 10(d) below).

b. Inspections. No person may operate this UAS within the preceding 12 calendar months unless it has had a condition inspection performed according to the FAA-accepted Aurora Flight Sciences GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A, both dated July 26, 2007, and was found to be in a condition for safe operation. This inspection will be recorded in the UAS maintenance records as described in paragraph 10(d) below.

c. Authorized inspectors. Only those individuals trained and authorized by Aurora Flight Sciences and acceptable to the FAA may perform the inspections and maintenance required by these operating limitations.

d. Maintenance and inspection records. Maintenance and inspections of the UAS must be recorded in the UAS maintenance records. The following information must be recorded:

(1) Maintenance record entries must include a description of the work performed, the date of completion for the work, the UAS's total time-in-service, and the name and signature of the person performing the work.

(2) Inspection entries must contain the following, or a similarly worded, statement: *I certify that this UAS was inspected on (date), in accordance with the scope and detail of the (applicant name) Inspection and Maintenance Program, and was found to be in a condition for safe operation.*

(3) UAS instruments and equipment required to be installed must be inspected and maintained in accordance with the requirements of the Aurora Flight Sciences FAA-accepted Aurora Flight Sciences GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A, both dated July 26, 2007. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

10. Information Reporting. Aurora Flight Sciences shall provide the following information to Donald E Grampp@faa.gov, and AIR-200 on a monthly basis:

- a. Number of flights conducted under this certificate.
- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware or software).
- d. Deviations from ATC instructions.
- e. Unintended entry into lost link flight mode that results in a course change.

11. Revisions and Other Provisions.

a. Experimental certificates, program letters, and operating limitations. The experimental certificate, FAA-accepted Aurora Flight Sciences program letter, and operating limitations cannot be reissued, renewed, or revised without application being made to the New Cumberland Manufacturing Inspection District Office (MIDO), in coordination with AIR-200. AIR-200 will be responsible for FAA Headquarters internal coordination with the Aircraft Certification Service, Flight Standards Service, Air Traffic Organization, Office of the Chief Council, and Office of Rulemaking.

b. Certificates of waiver or authorization. Aurora Flight Sciences shall immediately notify the Production and Airworthiness Division, AIR-200, and the New Cumberland MIDO, if there is any plan for requesting a Certificate of Authorization or Waiver (COA) for UAS operations during the time the experimental certificate is in effect. An entry in the aircraft logbook is required to document that the aircraft flight authority has been changed from the experimental certificate to COA. When COA operations are concluded and the aircraft resumes flying under the experimental certificate, a record entry will be made in the aircraft logbook by an appropriately rated person to document that the aircraft is in a condition for safe operation and appropriately configured.

c. Amendments and cancellations. The provisions and limitations annotated in this operational approval may be amended or cancelled at any time as deemed necessary by the FAA.

d. Reviews of revisions. All revisions to Aurora FAA-accepted GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision must be reviewed and accepted by the Washington Flight Standards District Office.

12. UAS Modifications.

a. Software and system changes. All software and system changes will be documented as part of the normal maintenance procedures and will be available for inspection. All software and system changes shall be inspected and approved per Aurora's maintenance procedures. All software changes to the aircraft and control station are categorized as major changes, and must be provided in summary form at the time they are incorporated.

b. Major modifications. All major modifications, whether performed under the experimental certificate, COA, or other authorizations, that could potentially affect the safe operation of the system, must be documented and provided to the FAA before operating the aircraft under this certificate. Major modifications incorporated under COA or other

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01/29/2009

authorization needs to be provided only if the aircraft is flown under these authorizations during the effective period of the experimental certificate.

c. Submission of modifications. All information requested must be provided to AIR-200.

End of Limitations



Henry K. Cooper
Aviation Safety Inspector
New Cumberland Manufacturing Inspection District
Office Bldg. 201, Room 102, 400 Airport Drive
New Cumberland, PA 17070-3419

1/28/09
Date:

I certify that I have read and understand the operating limitations and conditions that are a part of the special airworthiness certificate, FAA Form 8130-7, issued on January 29, 2009, for the purposes of research and development, market survey, and/or crew training.

This special airworthiness certificate is issued for Aurora Flight Sciences GE-50, serial number AU-028, registration number N828AU.



Applicant (signature)

1/29/09
Date:

Name: Peter Cooke

Title: GoldenEye 50 Chief Engineer

Company: Aurora Flight Sciences



U.S. Department
of Transportation
**Federal Aviation
Administration**

(A) 02/01/08

New Cumberland Manufacturing Inspection District
Office
Bldg. 201, Rm. 102,
400 Airport Drive
New Cumberland, PA 17070

CANCELLED
JAN 29 2009

EXPERIMENTAL - OPERATING LIMITATIONS

RESEARCH AND DEVELOPMENT, CREW TRAINING, and MARKET SURVEY.

REGISTERED OWNER NAME: AURORA FLIGHT SCIENCES CORPORATION	AIRCRAFT BUILDER: AURORA FLIGHT SCIENCES CORPORATION
REGISTERED OWNER ADDRESS: 9950 WAKEMAN DRIVE MANASSAS, VA 20110	YEAR MANUFACTURED: 2006
AIRCRAFT DESCRIPTION: DUCTED FAN VTOL	AIRCRAFT SERIAL NUMBER: AU-028
AIRCRAFT REGISTRATION: N828AU	AIRCRAFT MODEL DESIGNATION: GOLDEN EYE 50
	ENGINE MODEL: DESERT AIRCRAFT DA-50
	PROPELLER MODEL: CUSTOM 7-BLADE LIFT FAN

The following conditions and limitations apply to all Aurora Flight Sciences Golden Eye 50, Unmanned Aircraft System flight operations, while operating in the National Airspace System (NAS). These conditions and limitations must be accessible to the pilot in command at all times.

1. GENERAL:

a. For the purposes of this Special Airworthiness Certificate and Operating Limitations, the Golden Eye 50 (GE-50) Unmanned Aircraft System (UAS), owned and operated by Aurora Flight Sciences, is considered to be an integrated system. The system is composed of the GE-50 aircraft, S/N AU-028, UA control station(s) (fixed or mobile), telemetry, navigation and communications equipment to include ground and airborne equipment that is used for control of the GE-50 UA. The ground equipment used for communication with Air Traffic Control during UAS operations is considered part of the UAS.

b. Unless otherwise specified in this document, the UA Pilot-in-Command (PIC) and Aurora shall comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91.

c. No person may operate this UA for other than the purpose of Research and Development, Market Survey and/or Crew Training, to accomplish the flight operations outlined in Aurora Flight Sciences Program Letter, Aurora Report Number AR07-076 dated July 26, 2007 which describes compliance with § 21.193(d), and has been made available to the pilot in command of the UA. In addition, this UA must be operated in accordance with applicable air traffic and general operating rules of part 91, and all additional limitations herein prescribed under the provisions of § 91.319(e).

d. The UA PIC must determine that the UA is in a condition for safe operation and in a configuration appropriate for the purpose of the intended flight.

e. No person may operate this UA to carry property for compensation or hire.

f. This UA must be marked with its U.S. Registration number in accordance with 14 CFR part 45 or exemption thereto.

g. This UA must display the word "EXPERIMENTAL" in accordance with § 45.23(b) or exemption thereto.

h. Prior to conducting initial GE-50 flight operations, Aurora must forward an electronic copy of the GE-50 Program Letter, Special Airworthiness Certificate, and Operating Limitations to the following FAA personnel:

1) Lynda Otting, FAA Air Traffic Representative, Eastern Service Center, System Support, 1701 Columbia Ave, College Park, GA 30337, telephone (404) 305-5577, email lynda.g.otting@faa.gov.

2) Richard Posey, Aviation Safety Inspector, Production and Airworthiness Division, AIR-200, 800 Independence Ave, SW, Washington, DC 20591, telephone (202) 267-9538, email richard.posey@faa.gov.

i. Section 47.45 requires that the FAA Aircraft Registry must be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by submitting AC Form 8050-1 to AFS-750 in Oklahoma City, Oklahoma.

2. PROGRAM LETTER: The Aurora Flight Sciences Program Letter, Aurora Report Number AR07-076 dated July 26, 2007 shall be used as a basis for the determination of the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions of these operating limitations.

3. AUTHORIZED FLIGHT OPERATIONS AREA:

a. The base of operations for the UA shall be:

CANCELLED
JAN 29 2009

Flying Circus Aerodrome (3VA3)
 5414 Ritchie Rd
 Bealeton, VA 22712

b. The flight test operations area authorized for the UA at Flying Circus Aerodrome (3VA3) are graphically depicted below. No flights shall exceed 400 feet AGL.

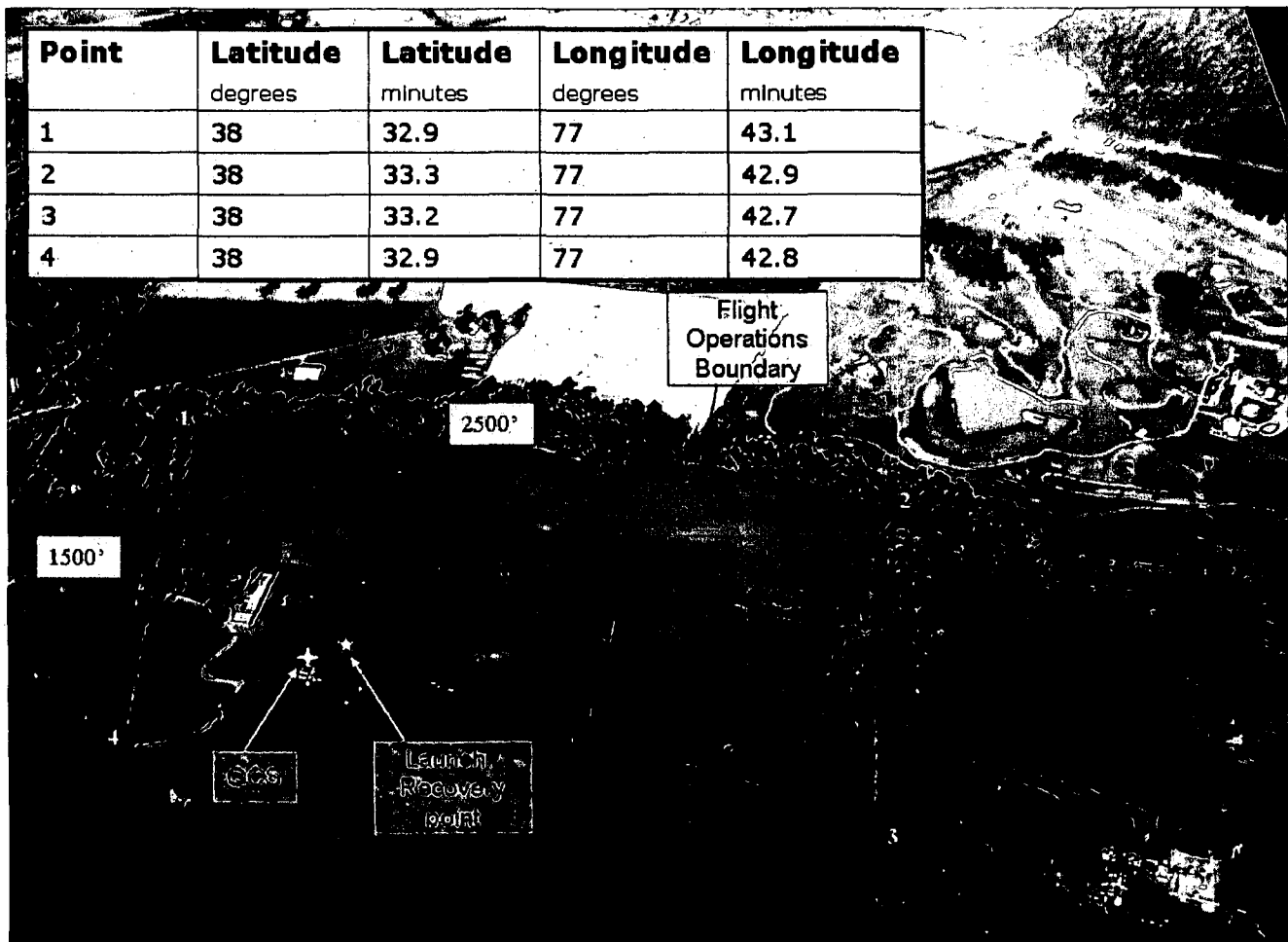


Figure 1. Proposed operations area at Flying Circus Aerodrome

c. Aurora shall notify the airport manager/owner, prior to each operation for coordination with any other potential activity in the vicinity.

d. The UA PIC shall ensure that all UA flight operations remain within the lateral and vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3). Furthermore, the UA PIC shall take into account all factors that may affect the capability of remaining within the flight test operations area at The Flying Circus Aerodrome (3AV3). This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

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JAN 29 2009

e. Incident / Accident Reporting. Any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3) shall be immediately concluded, and Air Traffic Control notified of the flight status. Any incident or accident, and any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3) or any Special Use Airspace shall be reported to the FAA Unmanned Aircraft Program Office (UAPO), AIR-160, as soon as practicable, but always within 24 hours. The point of contact to report this information is the Manager of the UAPO, AIR-160, Mr. Doug Davis. Mr. Davis can be reached by phone at 202-385-4636, fax at 202-385-4651, or by e-mail at Kenneth.d.davis@faa.gov. Accidents shall be reported to the National Transportation Safety Board per instructions contained on the NTSB website: www.ntsb.gov. Further flight operations shall not be conducted until the incident / accident is reviewed by ATO, AFS, and AIR-160, and authorization to resume operations is received.

f. Aircraft operations for the purpose of market survey cannot be performed until after 50 flight hours have been accomplished. A logbook entry is required as evidence of compliance.

4. UA PILOTS and OBSERVERS:

a. All flight operations shall have a designated UA Pilot-In-Command (PIC). Any additional UA pilot(s) assigned to a crew station during UA flight operations shall be considered a Supplemental UA Pilot. The UA PIC shall have responsibility over each flight conducted and be held accountable for the UA flight operation.

b. The UA PIC is responsible for the safety of the UA as well as persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground. The UA PIC shall avoid densely populated areas (§ 91.319) and exercise increased vigilance when operating within or in the vicinity of published airway boundaries.

c. The UA PIC shall hold, at a minimum, an FAA Private Pilot certificate, with either an Airplane or Rotorcraft category, Single or Multiengine class ratings, or military equivalent, and have it in his/her possession.

d. The Supplemental Pilot need not be a certificated pilot, but must have successfully completed a recognized Private Pilot ground school and successfully completed the private pilot written test.

e. The UA PIC shall have operational override capability over any Supplemental Pilot, regardless of position.

f. The UA PIC shall maintain currency in manned aircraft in accordance with § 61.57.

g. The UA PIC shall have a Flight Review in manned aircraft every 24 calendar months in accordance with § 61.56.

h. All UA Pilots shall maintain currency in unmanned aircraft in accordance with Aurora GoldenEye-50 Operator Training AR07-102.

JAN 29 2009

(A) 02.01.2008

i. All UA pilots shall have a Flight Review in unmanned aircraft every 24 calendar months in accordance with Aurora company procedures.

j. All flight operations conducted shall have an Observer to perform traffic avoidance and visual observation to fulfill the "see and avoid" requirement of § 91.113.

k. All Observers shall:

1) Hold at a minimum, an FAA Private Pilot certificate or military equivalent (an Observer does not require currency as a pilot); or,

2) In lieu of a Pilot certificate, have successfully completed specific Observer training acceptable to the FAA.

l. The UA PIC and Observer(s) must have in their possession a valid third class (or higher) airman medical certificate that has been issued under 14 CFR part 67.

m. UA Pilots and Observers shall perform crew duties for only one UA at a time.

n. All Observers must be thoroughly trained, familiar with, and possess, operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes as outlined in the Aurora Program Letter.

o. Observer Responsibilities: The task of the Observer is to provide the UA pilot(s) with instructions to maneuver the UA clear of any potential collision with other traffic. Observer duties require continuous visual contact with the UA at all times in such a manner as to be able to discern UA attitude and trajectory in relation to conflicting traffic. At no time shall Observers conduct their duties more than 1300 feet laterally or 400 feet vertically from the UA.

5. COMMUNICATIONS:

a. Appropriate Air Traffic frequencies shall be monitored during flight operations.

b. All UAS crew positions must maintain two-way communications with each other during all operations. If unable to maintain two-way communication, the UA will be expeditiously returned to its base of operations while remaining within the Primary Containment Area, and conclude the flight operation.

c. Spectrum used for operation and control of the UA must be approved by the Federal Communications Commission or other appropriate government oversight agency prior to operations being conducted.

6. FLIGHT CONDITIONS:

a. All flight operations must be conducted during daylight hours in visual meteorological conditions (VMC), including cloud clearance minimums as specified in § 91.155. Flight operation in instrument meteorological conditions (IMC) is not permitted.

b. The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight (§ 91.303).

c. Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.

d. The UA and shall be equipped with operable strobe/anti-collision lights and shall be illuminated during operations.

e. Aurora Flight Sciences must request the issuance of a Notice to Airman (NOTAM) through the local Automated Flight Service Station at least twenty-four 24 hours prior to flight operation.

7. FLIGHT TERMINATION & LOST LINK PROCEDURES:

a. In accordance with Aurora Flight Sciences Program Letter, Aurora Report Number AR07-076 dated July 26, 2007, flight termination must be initiated at any point that safe operation of the UA cannot be maintained.

b. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the flight test area. The observer will be immediately notified of the lost link condition and the expected UA response.

8. MAINTENANCE:

a. The GE-50 UAS must not be operated unless it is inspected and maintained in accordance with the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision. Maintenance must be recorded in the UAS maintenance records.

b. No person may operate this UAS unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with, FAA-accepted, GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, and was found to be in a condition for safe operation. This inspection will be recorded in the UAS maintenance records.

c. Only those individuals authorized by Aurora Flight Sciences, and acceptable to the FAA, may perform inspections required by these operating limitations.

d. Inspections of the UAS must be recorded in the UAS maintenance records showing the following, or a similarly worded, statement: "I certify that this UAS has been inspected on [insert date] in accordance with the scope and detail of the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007." The entry will include the UAS's total time-in-service, and the name and signature of the person performing the inspection and the date the inspection was performed.

CANCELLED
JAN 29 2009

e. UAS instruments and equipment installed must be inspected and maintained in accordance with the requirements of the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

9. EQUIPAGE:

The GE-50 Ground Control Station shall be equipped with two-way communications equipment allowing for communications between the UA pilot and Air Traffic Control.

10. INFORMATION REPORTING

Aurora Flight Sciences shall provide the following information to Donald E Grampp@faa.gov, AIR-200 on a monthly basis.

- a. Number of flights conducted under this certificate.
- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware or software), if any.
- d. Deviations from ATC instructions.
- e. Unintended entry into lost link flight mode that results in a course change.

11. REVISIONS

a. The experimental certificate, Aurora Flight Sciences FAA-accepted program letter, and operating limitations cannot be reissued, renewed, or revised without first notifying the Production and Airworthiness Division, AIR-200 and application being made to the New Cumberland MIDO. AIR-200 will be responsible for headquarters internal coordination with the Aircraft Certification Service, Flight Standards Service, Air Traffic, Office of Chief Council, and Office of Rulemaking.

b. No Certificate of Authorization or Waiver may be issued in association with this Experimental Certificate unless it is coordinated with AIR-200.

c. The provisions and limitations annotated in this operational approval may be amended or cancelled at any time as deemed necessary by the FAA.

d. All revisions to Aurora FAA-accepted GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision must be reviewed and accepted by the Washington Flight Standards District Office.

12. UA MODIFICATIONS

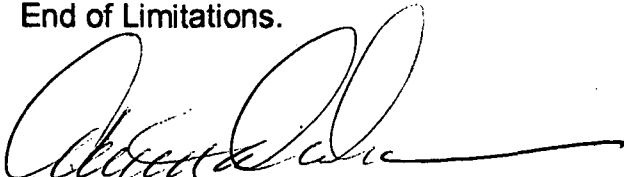
a. All software and system changes will be documented as part of the normal maintenance procedures and be available for inspection. All software and system changes shall be inspected and approved per Aurora's maintenance procedures. All software changes to the aircraft and GCS are categorized as major changes, and shall be provided in summary form at the time they are incorporated.

CANCELLED
JAN 29 2009

b. All major modifications, whether performed under the experimental certificate, COA, or other authorizations, that could potentially effect the safe operation of the system, shall be documented and shall be provided to the FAA prior to operating the aircraft under this certificate. Major modifications incorporated under COA or other authorization need only be provided if the aircraft is flown under these authorizations during the effective period of the experimental certificate.

c. All information requested shall be provided to AIR-200.

End of Limitations.



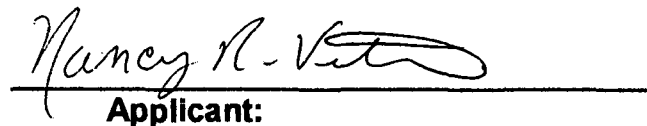
Henry K. Cooper
Senior Aviation Safety Inspector
New Cumberland Manufacturing Inspection District Office
Bldg. 201, Rm. 102,
400 Airport Road
New Cumberland, PA 17070-3419

Issuance Date (Amended):
February 1, 2008

The Special Airworthiness Certificate and accompanying Operating Limitations expire on

I certify that I have read and understand the operating limitations, and conditions, that are a part of the Special Airworthiness Certificate; FAA Form 8130-7 Issued on for the purposes of Research and Development, Market Survey and/or Crew Training.

This Special Airworthiness Certificate is issued for the Aurora Flight Sciences Systems, UA model "GE-50," serial number AU-028, registration number N828AU.



Applicant:

Date: February 1, 2008

Name: Nancy R. Vetere

Title: UAV Flight Operations Manager

Company: Aurora Flight Sciences

FAA FORM 8130-6, APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE

Form Approved O.M.B. No. 2120-0018
09/30/2007

 U.S. Department of Transportation Federal Aviation Administration		APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE		INSTRUCTIONS - Print or type. Do not write in shaded areas; these are for FAA use only. Submit original only to an authorized FAA Representative. If additional space is required, use attachment. For special flight permits complete Sections II, VI and VII as applicable.																					
		I. AIRCRAFT DESIGNATION 1. REGISTRATION MARK N828AU 5. AIRCRAFT SERIAL NO. AU-028 8. NUMBER OF ENGINES 1		2. AIRCRAFT BUILDER'S NAME (Make) Aurora Flight Sciences Corp 6. ENGINE BUILDER'S NAME (Make) Desert Aircraft 9. PROPELLER BUILDER'S NAME (Make) Aurora Flight Sciences Corp		3. AIRCRAFT MODEL DESIGNATION GoldenEye 50 7. ENGINE MODEL DESIGNATION DA-50 10. PROPELLER MODEL DESIGNATION Aurora Part #GE50-PE712		4. YR. MFR. 2006 11. AIRCRAFT IS (Check if applicable) IMPORT																	
		APPLICATION IS HEREBY MADE FOR: (Check applicable items)																							
		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">A</td> <td style="width:5%;">1</td> <td style="width:40%;">STANDARD AIRWORTHINESS CERTIFICATE (Indicate Category)</td> <td style="width:10%;">NORMAL</td> <td style="width:10%;">UTILITY</td> <td style="width:10%;">ACROBATIC</td> <td style="width:10%;">TRANSPORT</td> <td style="width:10%;">COMMUTER</td> <td style="width:10%;">BALLOON</td> <td style="width:10%;">OTHER</td> </tr> <tr> <td>B</td> <td>✓</td> <td>SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)</td> <td colspan="7"></td> </tr> </table>						A	1	STANDARD AIRWORTHINESS CERTIFICATE (Indicate Category)	NORMAL	UTILITY	ACROBATIC	TRANSPORT	COMMUTER	BALLOON	OTHER	B	✓	SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)					
A	1	STANDARD AIRWORTHINESS CERTIFICATE (Indicate Category)	NORMAL	UTILITY	ACROBATIC	TRANSPORT	COMMUTER	BALLOON	OTHER																
B	✓	SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)																							
II. CERTIFICATION REQUESTED		7. PRIMARY 9. LIGHT-SPORT (Indicate Class) AIRPLANE 2. LIMITED 5. PROVISIONAL (Indicate Class) 1. CLASS I 2. CLASS II 3. RESTRICTED (Indicate operation(s) to be conducted) 1. AGRICULTURE AND PEST CONTROL 2. AERIAL SURVEY 3. AERIAL ADVERTISING 4. FOREST (Wildlife Conservation) 5. PATROLLING 6. WEATHER CONTROL 0. OTHER (Specify) 4. ✓ EXPERIMENTAL (Indicate operation(s) to be conducted) 1. ✓ RESEARCH AND DEVELOPMENT 2. AMATEUR BUILT 3. EXHIBITION 4. AIR RACING 5. ✓ CREW TRAINING 6. ✓ MARKET SURVEY 0. TO SHOW COMPLIANCE WITH THE CFR 7. OPERATING (Primary Category) KIT BUILT AIRCRAFT 8. OPERATING LIGHT-SPORT 8A. Existing Aircraft without an airworthiness certificate & do not meet § 103.1 8B. Operating Light-Sport Kit-Built 8C. Operating light-sport previously issued special light-sport category airworthiness certificate under § 21.190 1. FERRY FLIGHT FOR REPAIRS, ALTERATIONS, MAINTENANCE, OR STORAGE 2. EVACUATION FROM AREA OF IMPENDING DANGER 3. OPERATION IN EXCESS OF MAXIMUM CERTIFICATED TAKE-OFF WEIGHT 4. DELIVERING OR EXPORTING 5. PRODUCTION FLIGHT TESTING 6. CUSTOMER DEMONSTRATION FLIGHTS																							
		C. 6. MULTIPLE AIRWORTHINESS CERTIFICATE (check ABOVE "Restricted Operation" and "Standard" or "Limited" as applicable)																							
		A. REGISTERED OWNER (As shown on certificate of aircraft registration) NAME Aurora Flight Sciences Corporation ADDRESS 9950 Wakeman Drive, Manassas, VA 20110																							
		B. AIRCRAFT CERTIFICATION BASIS (Check applicable blocks and complete items as indicated)																							
		AIRCRAFT SPECIFICATION OR TYPE CERTIFICATE DATA SHEET (Give No. and Revision No.) N/A		AIRWORTHINESS DIRECTIVES (Check if all applicable AD's are compiled with and give the number of the last AD SUPPLEMENT available in the biweekly series as of the date of application) X BI-WEEKLY 2008-2																					
		AIRCRAFT LISTING (Give page number(s)) N/A		SUPPLEMENTAL TYPE CERTIFICATE (List number of each STC incorporated) N/A																					
		C. AIRCRAFT OPERATION AND MAINTENANCE RECORDS																							
		X CHECK IF RECORDS IN COMPLIANCE WITH 14 CFR Section 91.417		TOTAL AIRFRAME HOURS 5.2 hours																					
		D. CERTIFICATION - I hereby certify that I am the registered owner (or his agent) of the aircraft described above, that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 et seq. and applicable Federal Aviation Regulations, and that the aircraft has been inspected and is airworthy and eligible for the airworthiness certificate requested.																							
		DATE OF APPLICATION February 1, 2008		NAME AND TITLE (Print or type) Nancy R. Vetere, UAV Flight Operations Manager		SIGNATURE 																			
IV. INSPECTION AGENCY VERIFICATION		A. THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSPECTED AND FOUND AIRWORTHY BY: (Complete the section only if 14 CFR part 21.183(d) applies.																							
		2. 14 CFR part 121 CERTIFICATE HOLDER (Give Certificate No.) 3. CERTIFICATED MECHANIC (Give Certificate No.) 6. CERTIFICATED REPAIR STATION (Give Certificate No.)																							
		5. AIRCRAFT MANUFACTURER (Give name or firm)																							
		DATE TITLE SIGNATURE																							
V. FAA REPRESENTATIVE CERTIFICATION		(Check ALL applicable block items A and B)																							
		A. I find that the aircraft described in Section I or VII meets requirements for		4. THE CERTIFICATE REQUESTED AMENDMENT OR MODIFICATION OF CURRENT AIRWORTHINESS CERTIFICATE																					
		B. Inspection for a special permit under Section VII was conducted by:		FAA INSPECTOR CERTIFICATE HOLDER UNDER																					
		DATE 2/1/08		DISTRICT OFFICE Hbg. ANE-MIDO-44																					
		DESIGNEE'S SIGNATURE AND NO. HENRY K. COOPER		FAA DESIGNEE 14 CFR part 135 14 CFR part 121 OR 135 14 CFR part 145																					

VI. PRODUCTION FLIGHT TESTING	A. MANUFACTURER							
	NAME		ADDRESS					
	B. PRODUCTION BASIS <i>(Check applicable item)</i>							
		PRODUCTION CERTIFICATE <i>(Give production certificate number)</i> _____ →						
		TYPE CERTIFICATE ONLY						
		APPROVED PRODUCTION INSPECTION SYSTEM						
C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS								
DATE OF APPLICATION		NAME AND TITLE <i>(Print or Type)</i>		SIGNATURE				
VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST	A. DESCRIPTION OF AIRCRAFT							
	REGISTERED OWNER		ADDRESS					
	BUILDER <i>(Make)</i>		MODEL					
	SERIAL NUMBER		REGISTRATION MARK					
	B. DESCRIPTION OF FLIGHT CUSTOMER DEMONSTRATION FLIGHTS <input type="checkbox"/> <i>(Check if applicable)</i>							
	FROM		TO					
	VIA		DEPARTURE DATE	DURATION				
	C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT							
	<input type="checkbox"/>	PILOT	<input type="checkbox"/>	CO-PILOT	<input type="checkbox"/>	FLIGHT ENGINEER	<input type="checkbox"/>	OTHER <i>(Specify)</i>
	D. THE AIRCRAFT DOES NOT MEET THE APPLICABLE AIRWORTHINESS REQUIREMENTS AS FOLLOWS:							
	E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED NECESSARY FOR SAFE OPERATION: <i>(Use attachment if necessary)</i>							
	F. CERTIFICATION – I hereby certify that I am the registered owner (or his agent) of the aircraft described above; that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 <u>et seq.</u> and applicable Federal Aviation Regulations; and that the aircraft has been inspected and is safe for the flight described.							
DATE		NAME AND TITLE <i>(Print or Type)</i>			SIGNATURE			
VIII. AIRWORTHINESS DOCUMENTATION (FAA/DESIGNEE use only)	<input checked="" type="checkbox"/>	A. Operating Limitations and Markings in Compliance with 14 CFR Section 91.9, as applicable.			G. Statement of Conformity, FAA Form 8130-9 <i>(Attach when required)</i>			
	<input checked="" type="checkbox"/>	B. Current Operating Limitations Attached			H. Foreign Airworthiness Certification for Import Aircraft <i>(Attach when required)</i>			
	<input checked="" type="checkbox"/>	C. Data, Drawings, Photographs, etc. <i>(Attach when required)</i>			I. Previous Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>21.191 a, c, f</u> CAR _____ <i>(Original Attached)</i>			
	<input checked="" type="checkbox"/>	D. Current Weight and Balance information Available in Aircraft			<input checked="" type="checkbox"/>	J. Current Airworthiness Certificate Issued in Accordance with 14 CFR Section <u>21.191 a, c, f</u> <i>(Copy Attached)</i>		
	<input type="checkbox"/>	E. Major Repair and Alteration, FAA Form 337 <i>(Attach when required)</i>			K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 <i>(Attach when required)</i>			
	<input checked="" type="checkbox"/>	F. This inspection Recorded in Aircraft Records						

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

SPECIAL AIRWORTHINESS CERTIFICATE

A	CATEGORY/DESIGNATION EXPERIMENTAL (UNMANNED AIRCRAFT)	
	PURPOSE Research & Development/Mkt. Survey/Crew Training	
B	MANUFACTURER	NAME N/A
		ADDRESS N/A
C	FLIGHT	FROM N/A
		TO N/A
D	N- 828AU	SERIAL NO. AU-028
	BUILDER Aurora Flight Sciences	MODEL GE-50
E	DATE OF ISSUANCE February 1, 2008 (A)	
	EXPIRY January 31, 2009	
	OPERATING LIMITATIONS DATED 2/17/2008	
	ARE PART OF THIS CERTIFICATE	
E	SIGNATURE OF FAA REPRESENTATIVE <i>Henry K. Cooper</i>	DESIGNATION OR OFFICE NO. ANE-MIDO-44

Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE TITLE 14, CODE OF FEDERAL REGULATIONS (CFR).

A	This airworthiness certificate is issued under the authority of Public Law 104-6, 49 United States Code (USC) 44704 and Title 14 Code of Federal Regulations (CFR).
B	The airworthiness certificate authorizes the manufacturer named on the reverse side to conduct production flight tests, and only production flight tests, of aircraft registered in his name. No person may conduct production flight tests under this certificate: (1) Carrying persons or property for compensation or hire; and/or (2) Carrying persons not essential to the purpose of the flight.
C	This airworthiness certificate authorizes the flight specified on the reverse side for the purpose shown in Block A.
D	This airworthiness certificate certifies that as of the date of issuance, the aircraft to which issued has been inspected and found to meet the requirements of the applicable CFR. The aircraft does not meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention On International Civil Aviation. No person may operate the aircraft described on the reverse side: (1) except in accordance with the applicable CFR and in accordance with conditions and limitations which may be prescribed by the Administrator as part of this certificate; (2) over any foreign country without the special permission of that country.
E	Unless sooner surrendered, suspended, or revoked, this airworthiness certificate is effective for the duration and under the conditions prescribed in 14 CFR, Part 21, Section 21.181 or 21.217.

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION

SPECIAL AIRWORTHINESS CERTIFICATE

02 01 08

A	CATEGORY/DESIGNATION EXPERIMENTAL (UNMANNED AIRCRAFT)	
	PURPOSE Research & Development/Market Svy./Crew Training	
B	MANUFACTURER	NAME N/A
		ADDRESS N/A
C	FLIGHT	FROM N/A
		TO N/A
D	N- 828AU	SERIAL NO. AU-028
	BUILDER Aurora Flight Sciences	MODEL GE-50
E	DATE OF ISSUANCE July 26, 2007	EXPIRY July 25, 2008
	OPERATING LIMITATIONS DATED 07/26/07 ARE A PART OF THIS CERTIFICATE	
	SIGNATURE OF FAA REPRESENTATIVE Henry K. Cooper	DESIGNATION OR OFFICE NO. ANE-MIDO-44

Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

A	This airworthiness certificate is issued under the authority of the Federal Aviation Act of 1958 and the Federal Aviation Regulations (FAR).
B	This airworthiness certificate authorizes the manufacturer named on the reverse side to conduct production flight tests, and only production flight tests, of aircraft registered in his name. No person may conduct production flight tests under this certificate: (1) Carrying persons or property for compensation or hire; and/or (2) Carrying persons not essential to the purpose of the flight.
C	This airworthiness certificate authorizes the flight specified on the reverse side for the purpose shown in Block A.
D	This airworthiness certificate certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to meet the requirements of the applicable FAR. The aircraft does not meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention On International Civil Aviation. No person may operate the aircraft described on the reverse side: (1) except in accordance with the applicable FAR and in accordance with conditions and limitations which may be prescribed by the Administrator as part of this certificate; (2) over any foreign country without the special permission of that country.
E	Unless sooner surrendered, suspended, or revoked, this airworthiness certificate is effective for the duration and under the conditions prescribed in FAR Part 21, Section 21.181 or 21.217.



U.S. Department
of Transportation
**Federal Aviation
Administration**

(A) 02/01/08

New Cumberland Manufacturing Inspection District
Office
Bldg. 201, Rm. 102,
400 Airport Drive
New Cumberland, PA 17070

EXPERIMENTAL - OPERATING LIMITATIONS

RESEARCH AND DEVELOPMENT, CREW TRAINING, and MARKET SURVEY.

REGISTERED OWNER NAME: AURORA FLIGHT SCIENCES CORPORATION	AIRCRAFT BUILDER: AURORA FLIGHT SCIENCES CORPORATION
REGISTERED OWNER ADDRESS: 9950 WAKEMAN DRIVE MANASSAS, VA 20110	YEAR MANUFACTURED: 2006
AIRCRAFT DESCRIPTION: DUCTED FAN VTOL	AIRCRAFT SERIAL NUMBER: AU-028
AIRCRAFT REGISTRATION: N828AU	AIRCRAFT MODEL DESIGNATION: GOLDEN EYE 50
	ENGINE MODEL: DESERT AIRCRAFT DA-50
	PROPELLER MODEL: CUSTOM 7-BLADE LIFT FAN

The following conditions and limitations apply to all Aurora Flight Sciences Golden Eye 50, Unmanned Aircraft System flight operations, while operating in the National Airspace System (NAS). These conditions and limitations must be accessible to the pilot in command at all times.

1. GENERAL:

a. For the purposes of this Special Airworthiness Certificate and Operating Limitations, the Golden Eye 50 (GE-50) Unmanned Aircraft System (UAS), owned and operated by Aurora Flight Sciences, is considered to be an integrated system. The system is composed of the GE-50 aircraft, S/N AU-028, UA control station(s) (fixed or mobile), telemetry, navigation and communications equipment to include ground and airborne equipment that is used for control of the GE-50 UA. The ground equipment used for communication with Air Traffic Control during UAS operations is considered part of the UAS.

b. Unless otherwise specified in this document, the UA Pilot-in-Command (PIC) and Aurora shall comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91.

c. No person may operate this UA for other than the purpose of Research and Development, Market Survey and/or Crew Training, to accomplish the flight operations outlined in Aurora Flight Sciences Program Letter, Aurora Report Number AR07-076 dated July 26, 2007 which describes compliance with § 21.193(d), and has been made available to the pilot in command of the UA. In addition, this UA must be operated in accordance with applicable air traffic and general operating rules of part 91, and all additional limitations herein prescribed under the provisions of § 91.319(e).

d. The UA PIC must determine that the UA is in a condition for safe operation and in a configuration appropriate for the purpose of the intended flight.

e. No person may operate this UA to carry property for compensation or hire.

f. This UA must be marked with its U.S. Registration number in accordance with 14 CFR part 45 or exemption thereto.

g. This UA must display the word "EXPERIMENTAL" in accordance with § 45.23(b) or exemption thereto.

h. Prior to conducting initial GE-50 flight operations, Aurora must forward an electronic copy of the GE-50 Program Letter, Special Airworthiness Certificate, and Operating Limitations to the following FAA personnel:

1) Lynda Otting, FAA Air Traffic Representative, Eastern Service Center, System Support, 1701 Columbia Ave, College Park, GA 30337, telephone (404) 305-5577, email lynda.g.otting@faa.gov.

2) Richard Posey, Aviation Safety Inspector, Production and Airworthiness Division, AIR-200, 800 Independence Ave, SW, Washington, DC 20591, telephone (202) 267-9538, email richard.posey@faa.gov.

i. Section 47.45 requires that the FAA Aircraft Registry must be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by submitting AC Form 8050-1 to AFS-750 in Oklahoma City, Oklahoma.

2. PROGRAM LETTER: The Aurora Flight Sciences Program Letter, Aurora Report Number AR07-076 dated July 26, 2007 shall be used as a basis for the determination of the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions of these operating limitations.

3. AUTHORIZED FLIGHT OPERATIONS AREA:

a. The base of operations for the UA shall be:

(A) 02.01.2008

Flying Circus Aerodrome (3VA3)
5414 Ritchie Rd
Bealeton, VA 22712

b. The flight test operations area authorized for the UA at Flying Circus Aerodrome (3VA3) are graphically depicted below. No flights shall exceed 400 feet AGL.

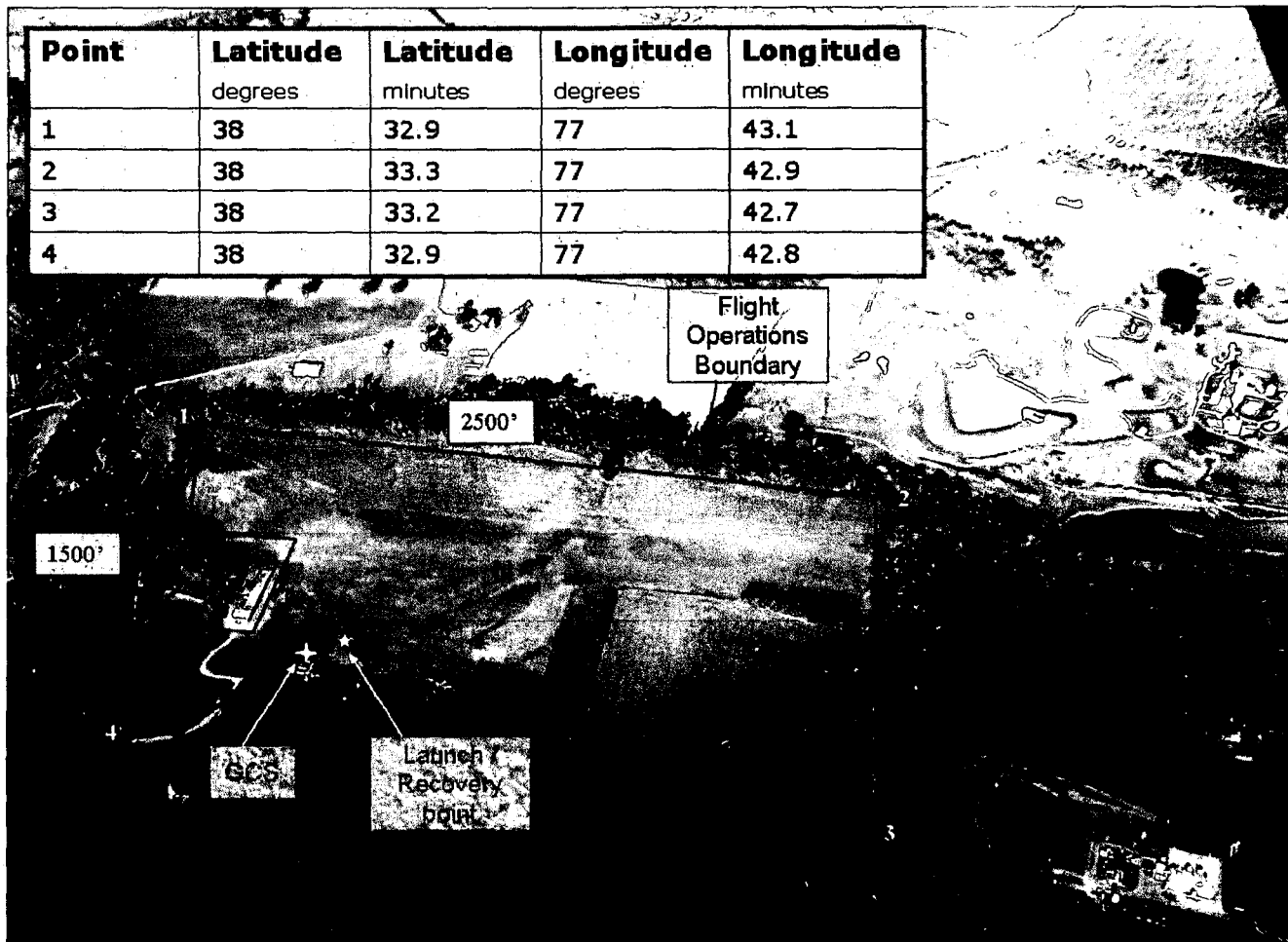


Figure 1. Proposed operations area at Flying Circus Aerodrome

c. Aurora shall notify the airport manager/owner, prior to each operation for coordination with any other potential activity in the vicinity.

d. The UA PIC shall ensure that all UA flight operations remain within the lateral and vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3). Furthermore, the UA PIC shall take into account all factors that may affect the capability of remaining within the flight test operations area at The Flying Circus Aerodrome (3AV3). This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

e. Incident / Accident Reporting. Any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3) shall be immediately concluded, and Air Traffic Control notified of the flight status. Any incident or accident, and any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3) or any Special Use Airspace shall be reported to the FAA Unmanned Aircraft Program Office (UAPO), AIR-160, as soon as practicable, but always within 24 hours. The point of contact to report this information is the Manager of the UAPO, AIR-160, Mr. Doug Davis. Mr. Davis can be reached by phone at 202-385-4636, fax at 202-385-4651, or by e-mail at Kenneth.d.davis@faa.gov. Accidents shall be reported to the National Transportation Safety Board per instructions contained on the NTSB website: www.nts.gov. Further flight operations shall not be conducted until the incident / accident is reviewed by ATO, AFS, and AIR-160, and authorization to resume operations is received.

f. Aircraft operations for the purpose of market survey cannot be performed until after 50 flight hours have been accomplished. A logbook entry is required as evidence of compliance.

4. UA PILOTS and OBSERVERS:

a. All flight operations shall have a designated UA Pilot-In-Command (PIC). Any additional UA pilot(s) assigned to a crew station during UA flight operations shall be considered a Supplemental UA Pilot. The UA PIC shall have responsibility over each flight conducted and be held accountable for the UA flight operation.

b. The UA PIC is responsible for the safety of the UA as well as persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground. The UA PIC shall avoid densely populated areas (§ 91.319) and exercise increased vigilance when operating within or in the vicinity of published airway boundaries.

c. The UA PIC shall hold, at a minimum, an FAA Private Pilot certificate, with either an Airplane or Rotorcraft category, Single or Multiengine class ratings, or military equivalent, and have it in his/her possession.

d. The Supplemental Pilot need not be a certificated pilot, but must have successfully completed a recognized Private Pilot ground school and successfully completed the private pilot written test.

e. The UA PIC shall have operational override capability over any Supplemental Pilot, regardless of position.

f. The UA PIC shall maintain currency in manned aircraft in accordance with § 61.57.

g. The UA PIC shall have a Flight Review in manned aircraft every 24 calendar months in accordance with § 61.56.

h. All UA Pilots shall maintain currency in unmanned aircraft in accordance with Aurora GoldenEye-50 Operator Training AR07-102.

i. All UA pilots shall have a Flight Review in unmanned aircraft every 24 calendar months in accordance with Aurora company procedures.

j. All flight operations conducted shall have an Observer to perform traffic avoidance and visual observation to fulfill the "see and avoid" requirement of § 91.113.

k. All Observers shall:

1) Hold at a minimum, an FAA Private Pilot certificate or military equivalent (an Observer does not require currency as a pilot); or,

2) In lieu of a Pilot certificate, have successfully completed specific Observer training acceptable to the FAA.

l. The UA PIC and Observer(s) must have in their possession a valid third class (or higher) airman medical certificate that has been issued under 14 CFR part 67.

m. UA Pilots and Observers shall perform crew duties for only one UA at a time.

n. All Observers must be thoroughly trained, familiar with, and possess, operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes as outlined in the Aurora Program Letter.

o. Observer Responsibilities: The task of the Observer is to provide the UA pilot(s) with instructions to maneuver the UA clear of any potential collision with other traffic. Observer duties require continuous visual contact with the UA at all times in such a manner as to be able to discern UA attitude and trajectory in relation to conflicting traffic. At no time shall Observers conduct their duties more than 1300 feet laterally or 400 feet vertically from the UA.

5. COMMUNICATIONS:

a. Appropriate Air Traffic frequencies shall be monitored during flight operations.

b. All UAS crew positions must maintain two-way communications with each other during all operations. If unable to maintain two-way communication, the UA will be expeditiously returned to its base of operations while remaining within the Primary Containment Area, and conclude the flight operation.

c. Spectrum used for operation and control of the UA must be approved by the Federal Communications Commission or other appropriate government oversight agency prior to operations being conducted.

6. FLIGHT CONDITIONS:

a. All flight operations must be conducted during daylight hours in visual meteorological conditions (VMC), including cloud clearance minimums as specified in § 91.155. Flight operation in instrument meteorological conditions (IMC) is not permitted.

(A) 02.01.2008

b. The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight (§ 91.303).

c. Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.

d. The UA and shall be equipped with operable strobe/anti-collision lights and shall be illuminated during operations.

e. Aurora Flight Sciences must request the issuance of a Notice to Airman (NOTAM) through the local Automated Flight Service Station at least twenty-four 24 hours prior to flight operation.

7. FLIGHT TERMINATION & LOST LINK PROCEDURES:

a. In accordance with Aurora Flight Sciences Program Letter, Aurora Report Number AR07-076 dated July 26, 2007, flight termination must be initiated at any point that safe operation of the UA cannot be maintained.

b. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the flight test area. The observer will be immediately notified of the lost link condition and the expected UA response.

8. MAINTENANCE:

a. The GE-50 UAS must not be operated unless it is inspected and maintained in accordance with the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision. Maintenance must be recorded in the UAS maintenance records.

b. No person may operate this UAS unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with, FAA-accepted, GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, and was found to be in a condition for safe operation. This inspection will be recorded in the UAS maintenance records.

c. Only those individuals authorized by Aurora Flight Sciences, and acceptable to the FAA, may perform inspections required by these operating limitations.

d. Inspections of the UAS must be recorded in the UAS maintenance records showing the following, or a similarly worded, statement: "I certify that this UAS has been inspected on [insert date] in accordance with the scope and detail of the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007." The entry will include the UAS's total time-in-service, and the name and signature of the person performing the inspection and the date the inspection was performed.

e. UAS instruments and equipment installed must be inspected and maintained in accordance with the requirements of the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

9. EQUIPAGE:

The GE-50 Ground Control Station shall be equipped with two-way communications equipment allowing for communications between the UA pilot and Air Traffic Control.

10. INFORMATION REPORTING

Aurora Flight Sciences shall provide the following information to Donald E Grampp@faa.gov, AIR-200 on a monthly basis.

- a. Number of flights conducted under this certificate.
- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware or software), if any.
- d. Deviations from ATC instructions.
- e. Unintended entry into lost link flight mode that results in a course change.

11. REVISIONS

a. The experimental certificate, Aurora Flight Sciences FAA-accepted program letter, and operating limitations cannot be reissued, renewed, or revised without first notifying the Production and Airworthiness Division, AIR-200 and application being made to the New Cumberland MIDO. AIR-200 will be responsible for headquarters internal coordination with the Aircraft Certification Service, Flight Standards Service, Air Traffic, Office of Chief Council, and Office of Rulemaking.

b. No Certificate of Authorization or Waiver may be issued in association with this Experimental Certificate unless it is coordinated with AIR-200.

c. The provisions and limitations annotated in this operational approval may be amended or cancelled at any time as deemed necessary by the FAA.

d. All revisions to Aurora FAA-accepted GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision must be reviewed and accepted by the Washington Flight Standards District Office.

12. UA MODIFICATIONS

a. All software and system changes will be documented as part of the normal maintenance procedures and be available for inspection. All software and system changes shall be inspected and approved per Aurora's maintenance procedures. All software changes to the aircraft and GCS are categorized as major changes, and shall be provided in summary form at the time they are incorporated.

The first part of the report deals with the general situation of the country. It is a very interesting and informative study of the country's development. The author has done a great deal of research and has gathered a wealth of material. The report is well written and is a valuable contribution to the study of the country's development.

The second part of the report deals with the economic situation of the country. It is a very interesting and informative study of the country's economic development. The author has done a great deal of research and has gathered a wealth of material. The report is well written and is a valuable contribution to the study of the country's economic development.

The third part of the report deals with the social situation of the country. It is a very interesting and informative study of the country's social development. The author has done a great deal of research and has gathered a wealth of material. The report is well written and is a valuable contribution to the study of the country's social development.

The fourth part of the report deals with the political situation of the country. It is a very interesting and informative study of the country's political development. The author has done a great deal of research and has gathered a wealth of material. The report is well written and is a valuable contribution to the study of the country's political development.

The fifth part of the report deals with the cultural situation of the country. It is a very interesting and informative study of the country's cultural development. The author has done a great deal of research and has gathered a wealth of material. The report is well written and is a valuable contribution to the study of the country's cultural development.

The sixth part of the report deals with the environmental situation of the country. It is a very interesting and informative study of the country's environmental development. The author has done a great deal of research and has gathered a wealth of material. The report is well written and is a valuable contribution to the study of the country's environmental development.

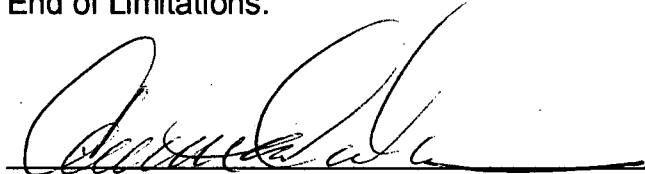
The seventh part of the report deals with the future of the country. It is a very interesting and informative study of the country's future development. The author has done a great deal of research and has gathered a wealth of material. The report is well written and is a valuable contribution to the study of the country's future development.

(A) 02.01.2008

b. All major modifications, whether performed under the experimental certificate, COA, or other authorizations, that could potentially effect the safe operation of the system, shall be documented and shall be provided to the FAA prior to operating the aircraft under this certificate. Major modifications incorporated under COA or other authorization need only be provided if the aircraft is flown under these authorizations during the effective period of the experimental certificate.

c. All information requested shall be provided to AIR-200.

End of Limitations.



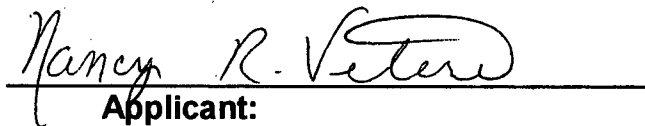
Henry K. Cooper
Senior Aviation Safety Inspector
New Cumberland Manufacturing Inspection District Office
Bldg. 201, Rm. 102,
400 Airport Road
New Cumberland, PA 17070-3419

Issuance Date (Amended):
February 1, 2008

The Special Airworthiness Certificate and accompanying Operating Limitations expire on

I certify that I have read and understand the operating limitations, and conditions, that are a part of the Special Airworthiness Certificate; FAA Form 8130-7 issued on for the purposes of Research and Development, Market Survey and/or Crew Training.

This Special Airworthiness Certificate is issued for the Aurora Flight Sciences Systems, UA model "GE-50," serial number AU-028, registration number N828AU.



Applicant:

Date: February 1, 2008

Name: Nancy R. Vetere

Title: UAV Flight Operations Manager

Company: Aurora Flight Sciences



GoldenEye-50

**Revised Program Letter
For Experimental Certification
(Flying Circus Aerodrome
Bealeton, VA)**

**Prepared for
Federal Aviation Administration**

Contract Number: N/A

Aurora Report Number: AR07-076

July 26, 2007

**Prepared by
Aurora Flight Sciences Corporation
9950 Wakeman Drive
Manassas, Virginia 20110**

www.aurora.aero

**PROGRAM LETTER FOR UNMANNED AIRCRAFT SYSTEMS**

REGISTERED OWNER NAME:	AURORA FLIGHT SCIENCES CORPORATION
AIRCRAFT BUILDER:	AURORA FLIGHT SCIENCES CORPORATION
REGISTERED OWNER ADDRESS:	9950 WAKEMAN DRIVE MANASSAS, VA 20110
YEAR MANUFACTURED:	2006
AIRCRAFT DESCRIPTION:	DUCTED FAN VTOL UNMANNED AERIAL VEHICLE
AIRCRAFT SERIAL NUMBER:	AU- 028
AIRCRAFT REGISTRATION:	N828AU
AIRCRAFT MODEL DESIGNATION:	GOLDENEYE 50 (GE-50)
ENGINE MODEL:	DESERT AIRCRAFT DA-50-R SINGLE- CYLINDER 2-CYCLE ENGINE
PROPELLER MODEL:	CUSTOM 7-BLADE LIFT FAN

1. DEFINE THE EXPERIMENTAL PURPOSE(S) UNDER WHICH THE AIRCRAFT IS TO BE OPERATED (14 CFR § 21.191).

In accordance with the above referenced regulation, Aurora Flight Sciences will operate the GoldenEye unmanned aerial vehicles for the purpose of research and development, crew training, and market surveys.

2. DESCRIBE THE PURPOSE/SCOPE OF THE EXPERIMENTAL PROGRAM FOR EACH 14 CFR § 21.191 EXPERIMENTAL PURPOSE SOUGHT (14 CFR §§ 21.193(b)(d)).

(1) Research and development – Aurora will fly the experimental GoldenEye vehicle to flight test the vehicle and to expand the flight envelope.

(2) Crew Training – Aurora will fly the vehicles as part of the company's training program to qualify crewmembers to operate the vehicles and to increase flying proficiency.

(3) Market Surveys – Aurora will fly the vehicle for sales demonstrations for potential customers.

3. DEFINE THE AREA(S) IN WHICH THE EXPERIMENTAL FLIGHTS WILL BE CONDUCTED.

a. Describe the areas over which the flights are to be conducted and address of base operation (14 CFR § 21.193(d)(3)).

Flights will be conducted at Flying Circus Aerodrome, Bealeton, VA

b. Identify all proposed flight areas using latitude and longitude on aeronautical maps.

Flying Circus Aerodrome Bealeton, VA – Identifier 3VA3

POINT	LATITUDE degrees	LATITUDE minutes	LONGITUDE degrees	LONGITUDE minutes
1	38	32.9	77	43.1
2	38	33.3	77	42.9
3	38	33.2	77	42.7
4	38	32.9	77	42.8

Note: The coordinates listed in the above table correspond to Waypoints 1 through 4 in Figure 1 below.



FIGURE (1) Flying Circus Aerodrome, Bealeton, Va

- a. Include information on airspeed, altitude, number of flight hours, number of flights and program duration for each test flight area.**

	Airport/ Area	Airspeed Max	Altitude Max	Flight Hours (estimated)	# of Flights (estimated)	Program Duration
	3VA3 (Bealeton)	60 kts	400 AGL	125	250	1 year

- b. What class of airspace will be used?**

Aurora expects flying to occur in Class G airspace.

July 26, 2007

c. Will minimum fuel requirements of 14 CFR § 91.151 be met?

Fuel burn is a precisely monitored flight test parameter. Current operations typically take place in a very small geographic area under visual conditions where immediate landing is possible, eliminating the need to fly an additional 30 or 45 minutes to find a suitable landing site.

d. Will flight-testing include payload testing?

Yes. The current vehicle payload is an E/O camera. Flight testing may include the testing of other payloads, except weaponized payloads are not expected to be tested.

e. What considerations need to be taken with regard to payloads?

None.

f. Will the aircraft perform any aerobatic maneuvers?

The vehicles do not perform aerobatic maneuvers. Flight maneuvers for the GoldenEye 50 vehicle include vertical takeoff and landing, hover flight, turns about the vertical axis, and climbs and descents.

g. Flight Conditions (e.g., VFR, IFR, VMS, etc.)

VFR

4. AIRCRAFT CONFIGURATION. Attach three-view drawings or three-view dimensioned photographs of the aircraft (14 CFR § 21.193(b)(4)). Describe Unmanned Aircraft System configuration including ground control station. Include a description of aircraft/system performance characteristics including:

See Figures (1 and 2) at the end of this document.

Aircraft system configuration is a ducted fan with torsionally disconnected "free wings". The engine for the GE-50 engine and propeller is enclosed in the fuselage.

The Ground control station consists of a laptop computer with proprietary software. It is connected to a datalink antenna. The ground control station (GCS) communicates with the air vehicle by means of a 900 MHz datalink. Payload imagery is sent from the aircraft to the GCS over a separate 2.4 GHz datalink. Flight commands and vehicle flight reports are up- and downlinked via the datalink. Vehicle state and health information is reported on the GCS laptop display to the air vehicle operator.

GoldenEye-50	
a. Wing span	4.4 feet
b. Length	2.9 feet
c. Powerplant	Desert Aircraft DA-50 single-cylinder 2-cycle engine
d. Max gross take off weight	21 lbs
e. Fuel capacity	30 fluid oz
f. Payload capacity	2 lbs
g. Max altitude	5000 feet
h. Endurance	20 minutes
i. Max airspeed	40 kts
j. Control/data frequencies	900MHz frequency-hopping spread-spectrum (command & control) 2.4GHz (payload data)
k. Guidance and navigation control	GuideStar computer (Athena Technologies Inc)

5. INSPECTION AND MAINTENANCE (14 CFR Part 91 Subpart E).

- a. Describe the inspection and maintenance program that will be used to maintain the aircraft and related systems (includes ground stations and/or other support systems).**

Due to the current phase of the GE-50 program, inspection and maintenance program is currently a continuous maintenance program rather than one based on periodic inspections. Aurora maintenance procedures include thorough pre-flight and post-flight checklists which cover all systems. Maintenance is also performed on the vehicle between flights. These checklists will be provided for review.

- b. Provide copy of flight manual, if applicable, current weight and balance report, equipment list.**

The GE-50 Standard Operating Procedures and weight and balance information will be provided for review.

6. PILOT QUALIFICATION (14 CFR §§ 61.3, 61.5).

- 1. Describe the qualifications for each pilot.**

Flights are supervised by at least one FAA certificated pilot. Aurora UAV operators have previous UAV experience through either commercial and/or military operations and many have been involved in the system design and development. All crewmembers undergo an Aurora qualification program.



July 26, 2007

Aurora Crewmember	Qualifications
Flight Director (PIC)	Airline Transport Pilot License Aurora trained GE50 flight director (PIC)
Operator (Supplemental Pilot)	Prior Military UAV Instructor Pilot Aurora trained operator
Operator (Supplemental Pilot)	GE50 Technician Aurora trained operator
Crew Chief	Aurora trained crew chief
Trainee	Prior Military UAV Standardization Instructor Pilot Aurora operator in training
Trainee	Private Pilot License, Aurora operator in training
Trainee	Aurora operator in training
Crew Chief	Aurora trained crew chief

b. Pilots must be qualified/certificated in the appropriate type of aircraft, i.e., rotorcraft, powered lift, fixed wing, etc.

Not applicable

c. Describe internal training program to qualify pilots.

Aurora's internal program consists of a company taught ground instruction, simulator training, ground and flight operations observation, and actual flight training under the supervision of an experienced UAV operator/instructor.

d. Describe the qualifications and training of observers.

Observers are Aurora trained and are knowledgeable on our operations and applicable flight rules.

7. AIRCRAFT MARKING (14 CFR Part 45). All Unmanned Aircraft System (UAS) are required to be registered and identified with the registration number. Aircraft must be marked in accordance with part 45.

Aircraft (N828AU) is marked IAW FAA direction.

8. ATC TRANSPONDER AND ALTITUDE REPORTING SYSTEM EQUIPMENT AND USE (14 CFR § 91.215). Describe the aircraft altitude reporting system.

There is no transponder on Aurora GoldenEye vehicles.

9. METHOD FOR SEE AND AVOID (14 CFR § 91.113a). In what manner, or by what means, will the requirement to “see and avoid” other aircraft be met? What performance will the chase plane have?

See and avoid capability is provided by the flight crew on the ground. Currently, the vehicle is maintained in line of sight at all times. The flight crew, complemented by range safety observers, scans the operations area for potential traffic conflicts and executes appropriate avoidance maneuvers if required. Aurora does not currently use a chase plane for GoldenEye flights.

10. SAFETY RISK MANAGEMENT. An applicant must provide a safety checklist that identifies and analyzes the hazards of UAS operations that are described in the program letter. Additional information is available by contacting the FAA Aviation Safety Inspector. A completed Safety Checklist will be submitted in conjunction with this document.

11. SYSTEM CONFIGURATION. Provide a description of aircraft system configuration and all on-board and ground-based equipment.

GoldenEye-50	
On-board equipment	<ul style="list-style-type: none"> • Desert Aircraft DA-50 single-cylinder 2-cycle engine • Athena Technologies flight controls computer • 900MHz communications radio & antenna • E/O camera • 2.4GHz video transmitter & antenna
Ground-based equipment	<ul style="list-style-type: none"> • GCS laptop computer • 900MHz radio for command & control, with antenna • 2.4GHz video receiver & antenna • Optional second display case for engineering data and/or payload video • Strap-down platform for pre-launch run-up checks • Starter • Ground power / charger unit

12. SYSTEM SAFETY - FLIGHT TERMINATION AND LOST LINK. What is the expectation of aircraft “Flight” if fuel is starved? Briefly describe/explain aircraft lost link and emergency recovery procedures. Provide a brief explanation of the flight termination system (FTS).

Like most VTOL aircraft, GoldenEye aircraft do not glide. If fuel is starved, the vehicle will descend almost vertically. If the communications uplink is lost, the vehicle will hover in place and then enter a vertical auto-land. Future software loads on the GoldenEye-50 may include the ability to climb or descend to a specified

July 26, 2007

altitude, turn to a specified heading, and/or return to a specified waypoint (such as the takeoff location).

The GE-50 has a "kill" command that may be issued by the flight crew. This command shuts down the aircraft's propulsion system, which will put the aircraft into a vertical descent and crash-landing.

13. COMMAND AND CONTROL. Provide a brief description of the system and/or procedures for command and control of the UAS.

GoldenEye-50 is operated using a touch screen laptop for command and control. The vehicle can be operated manually, in which the operator specifies direction of flight (forward, backward, left, right) and groundspeed, altitude and climb rate. Mission Scripts (plans) can also be uploaded prior to flight. These plans may include waypoint navigation, altitude changes, groundspeed changes, etc.

The vehicle is launched and recovered via one-button "takeoff" and "land" commands from the GCS. "Takeoff" directs the airplane to launch vertically and climb to a specified altitude, then hover in place until additional commands are received from the ground control station. "Land" directs the airplane to descend vertically until the ground sensors trigger, at which time the engine shuts down and the flight controls system is shutdown.

The vehicle will be operated in accordance with Aurora Report AR-07-068A, GoldenEye-50 Standard Operating Procedures, dated July 24, 2007.

14. CONTROL STATIONS. Provide a brief description of the ground/airborne stations used to control the UAS.

The GE50 system utilizes a computer for the ground control station. The laptop computer and the communications radios and antennas may be mounted in a vehicle or as a tabletop/handheld setup. There is also an additional computer that is sometimes used for additional data collection and system monitoring, but does not provide command and control capability.

15. CONTROL FREQUENCIES. Provide a description/listing of the frequencies used to control the UAS.

900 MHz (command and control)

2.4 GHz (payload video data, not used for control)

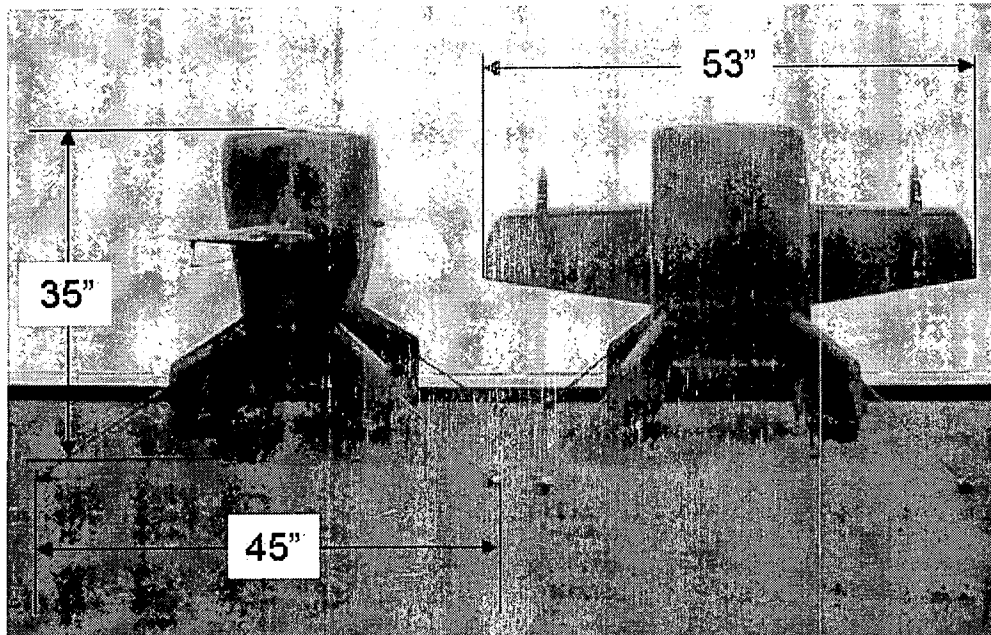


FIGURE (2) – GE50 Side and Bottom View

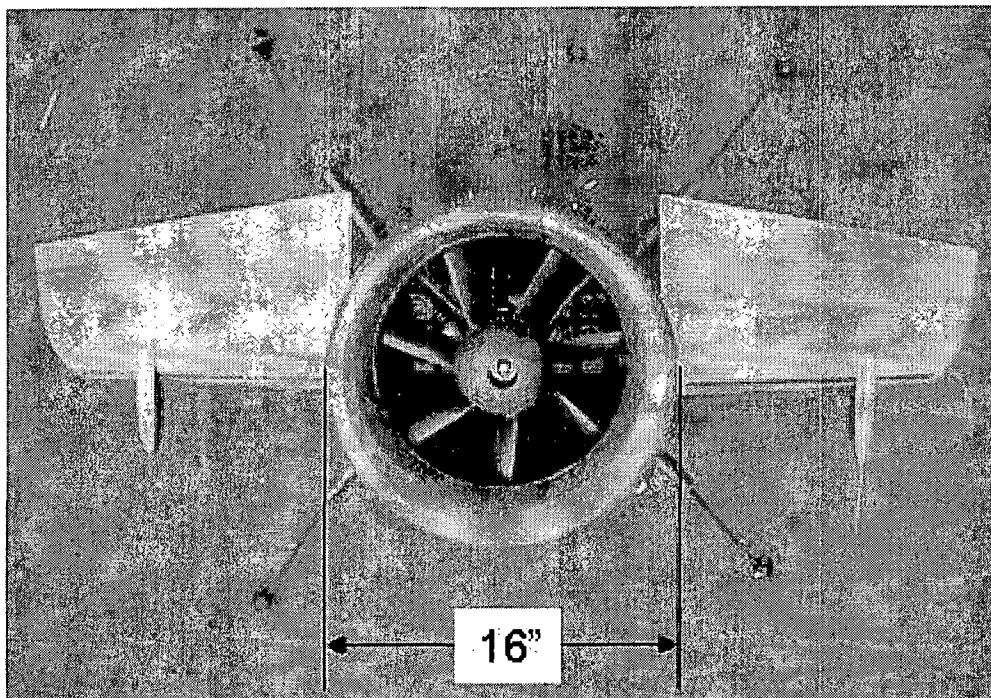


FIGURE (3) – GE-50 Front View



U.S. Department
of Transportation

**Federal Aviation
Administration**

New Cumberland Manufacturing Inspection District Office
Bldg. 201, Rm. 102,
400 Airport Drive
New Cumberland, PA 17070

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Hbg-
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EXPERIMENTAL - OPERATING LIMITATIONS
RESEARCH AND DEVELOPMENT, CREW TRAINING, and MARKET SURVEY.

REGISTERED OWNER NAME: AURORA FLIGHT SCIENCES	AIRCRAFT BUILDER: AURORA FLIGHT SCIENCES
REGISTERED OWNER ADDRESS: 9950 WAKEMAN DRIVE MANASSAS, VA 20110	YEAR MANUFACTURED: 2006
AIRCRAFT DESCRIPTION: DUCTED FAN VTOL	AIRCRAFT SERIAL NUMBER: AU-028
AIRCRAFT REGISTRATION: N828AU	AIRCRAFT MODEL DESIGNATION: GOLDEN EYE 50
	ENGINE MODEL: DESERT AIRCRAFT DA-50
	PROPELLER MODEL: CUSTOM 7-BLADE LIFT FAN

The following conditions and limitations apply to all Aurora Flight Sciences Golden Eye 50, Unmanned Aircraft System flight operations, while operating in the National Airspace System (NAS). These conditions and limitations must be accessible to the pilot in command at all times.

1. GENERAL:

a. For the purposes of this Special Airworthiness Certificate and Operating Limitations, the Golden Eye 50 (GE-50) Unmanned Aircraft System (UAS), owned and operated by Aurora Flight Sciences, is considered to be an integrated system. The system is composed of the GE-50 aircraft, S/N AU-028, UA control station(s) (fixed or mobile), telemetry, navigation and communications equipment to include ground and airborne equipment that is used for control of the GE-50 UA. The ground equipment used for communication with Air Traffic Control during UAS operations is considered part of the UAS.

b. Unless otherwise specified in this document, the UA Pilot-in-Command (PIC) and Aurora shall comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91.

c. No person may operate this UA for other than the purpose of Research and Development, Market Survey and/or Crew Training, to accomplish the flight operations outlined in Aurora Flight Sciences Program Letter AR07-076 dated July 26, 2007 which describes compliance with § 21.193(d), and has been made available to the pilot in command of the UA. In addition, this UA must be operated in accordance with applicable air traffic and general operating rules of part 91, and all additional limitations herein prescribed under the provisions of § 91.319(e).

d. The UA PIC must determine that the UA is in a condition for safe operation and in a configuration appropriate for the purpose of the intended flight.

e. No person may operate this UA to carry property for compensation or hire.

f. This UA must be marked with its U.S. Registration number in accordance with 14 CFR part 45 or exemption thereto.

g. This UA must display the word "EXPERIMENTAL" in accordance with § 45.23(b) or exemption thereto.

h. Prior to conducting initial GE-50 flight operations, Aurora must forward an electronic copy copy of the GE-50 Program Letter, Special Airworthiness Certificate, and Operating Limitations to: Lynda Otting, FAA Air Traffic Representative, Eastern Service Center, System Support, 1701 Columbia Ave, College Park, GA 30337, telephone (404) 305-5577, email Lynda.G.Otting@faa.gov.

i. Section 47.45 requires that the FAA Aircraft Registry must be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by submitting AC Form 8050-1 to AFS-750 in Oklahoma City, Oklahoma.

2. PROGRAM LETTER: The Aurora Flight Sciences Program Letter, dated July 26, 2007 shall be used as a basis for the determination of the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions of these operating limitations.

3. AUTHORIZED FLIGHT OPERATIONS AREA:

a. The base of operations for the UA shall be:

Flying Circus Aerodrome (3VA3)
5414 Ritchie Rd
Bealeton, VA 22712

b. The flight test operations area authorized for the UA at Flying Circus Aerodrome (3VA3) are graphically depicted below.

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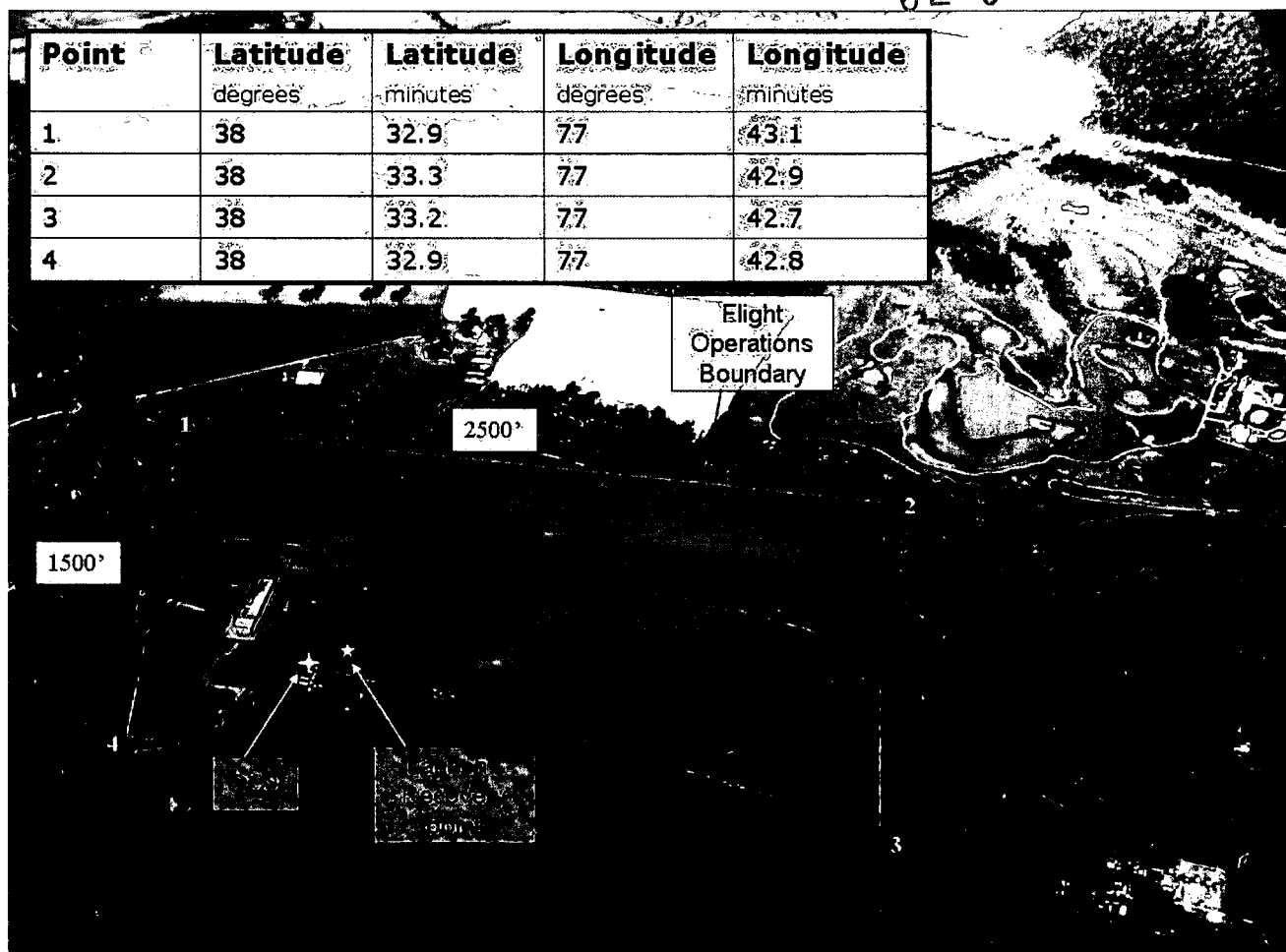


Figure 1. Proposed operations area at Flying Circus Aerodrome

c. Aurora shall notify the airport manager/owner, prior to each operation, for coordination with any other potential activity in the vicinity.

d. The UA PIC shall ensure that all UA flight operations remain within the lateral and vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3). Furthermore, the UA PIC shall take into account all factors that may affect the capability of remaining within the flight test operations area at The Flying Circus Aerodrome (3AV3). This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

e. Any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at shall be immediately concluded, and Air Traffic Control notified of the flight status. Aurora shall, at the conclusion of the flight, immediately notify the Manager of the Unmanned Aircraft Program Office AIR-160, of any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3). The point of contact is Mr. Doug Davis. Mr. Davis can be reached at 202-385-4636 or email kenneth.d.davis@faa.gov.

f. Further flight operations shall not be conducted until the incident is reviewed by AIR-160, and authorization to resume operations is received.

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July 26, 2007

Fig.

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g. Aircraft operations for the purpose of market survey cannot be performed until after 50 flight hours have been accomplished. A logbook entry is required as evidence of compliance.

4. UA PILOTS and OBSERVERS:

a. All flight operations shall have a designated UA Pilot-In-Command (PIC). Any additional UA pilot(s) assigned to a crew station during UA flight operations shall be considered a Supplemental UA Pilot. The UA PIC shall have responsibility over each flight conducted and be held accountable for the UA flight operation.

b. The UA PIC is responsible for the safety of the UA as well as persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground. The UA PIC shall avoid densely populated areas (§ 91.319) and exercise increased vigilance when operating within or in the vicinity of published airway boundaries.

c. The UA PIC shall hold, at a minimum, an FAA Private Pilot certificate, with either an Airplane or Rotorcraft category, Single or Multiengine class ratings, or military equivalent, and have it in his/her possession.

d. The Supplemental Pilot need not be a certificated pilot, but must have successfully completed a recognized Private Pilot ground school and successfully completed the private pilot written test.

e. The UA PIC shall have operational override capability over any Supplemental Pilot, regardless of position.

f. The UA PIC shall maintain currency in manned aircraft in accordance with § 61.57.

g. The UA PIC shall have a Flight Review in manned aircraft every 24 calendar months in accordance with § 61.56.

h. All UA Pilots shall maintain currency in unmanned aircraft in accordance with Aurora GoldenEye-50 Operator Training AR07-102.

i. All UA pilots shall have a Flight Review in unmanned aircraft every 24 calendar months in accordance with Aurora company procedures.

j. All flight operations conducted shall have an Observer to perform traffic avoidance and visual observation to fulfill the "see and avoid" requirement of § 91.113.

k. All Observers shall:

1) Hold at a minimum, an FAA Private Pilot certificate or military equivalent (an Observer does not require currency as a pilot); or,

2) In lieu of a Pilot certificate, have successfully completed specific Observer training acceptable to the FAA.

l. The UA PIC and Observer(s) must have in their possession a valid third class (or higher) airman medical certificate that has been issued under 14 CFR part 67.

m. UA Pilots and Observers shall perform crew duties for only one UA at a time.

n. All Observers must be thoroughly trained, familiar with, and possess, operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes as outlined in the Aurora Program Letter.

o. Observer Responsibilities: The task of the Observer is to provide the UA pilot(s) with instructions to maneuver the UA clear of any potential collision with other traffic. Observer duties require continuous visual contact with the UA at all times in such a manner as to be able to discern UA attitude and trajectory in relation to conflicting traffic. At no time shall Observers conduct their duties more than 1300 feet laterally or 400 feet vertically from the UA.

5. COMMUNICATIONS:

a. Appropriate Air Traffic frequencies shall be monitored during flight operations.

b. All UAS crew positions must maintain two-way communications with each other during all operations. If unable to maintain two-way communication, the UA will be expeditiously returned to its base of operations while remaining within the Primary Containment Area, and conclude the flight operation.

c. Spectrum used for operation and control of the UA must be approved by the Federal Communications Commission or other appropriate government oversight agency prior to operations being conducted.

6. FLIGHT CONDITIONS:

a. All flight operations must be conducted during daylight hours in visual meteorological conditions (VMC), including cloud clearance minimums as specified in § 91.155. Flight operation in instrument meteorological conditions (IMC) is not permitted.

b. The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight (§ 91.303).

c. Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.

d. The UA and shall be equipped with operable strobe/anti-collision lights and shall be illuminated during operations.

e. Aurora Flight Sciences must request the issuance of a Notice to Airman (NOTAM) through the local Automated Flight Service Station at least twenty-four 24 hours prior to flight operation.

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July 26, 2007

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7. FLIGHT TERMINATION & LOST LINK PROCEDURES:

- a. In accordance with Aurora Flight Sciences Program Letter, dated July 26, 2007, flight termination must be initiated at any point that safe operation of the UA cannot be maintained.
- b. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the flight test area. The observer will be immediately notified of the lost link condition and the expected UA response.

8. MAINTENANCE:

- a. The GE-50 UAS must not be operated unless it is inspected and maintained in accordance with the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision. Maintenance must be recorded in the UAS maintenance records.
- b. No person may operate this UAS unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with, FAA-accepted, GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, and was found to be in a condition for safe operation. This inspection will be recorded in the UAS maintenance records.
- c. Only those individuals authorized by Aurora Flight Sciences, and acceptable to the FAA, may perform inspections required by these operating limitations.
- d. Inspections of the UAS must be recorded in the UAS maintenance records showing the following, or a similarly worded, statement: "I certify that this UAS has been inspected on [insert date] in accordance with the scope and detail of the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007." The entry will include the UAS's total time-in-service, and the name and signature of the person performing the inspection and the date the inspection was performed.
- e. UAS instruments and equipment installed must be inspected and maintained in accordance with the requirements of the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

9. EQUIPAGE:

The GE-50 Ground Control Station will be equipped with two-way communications equipment allowing for communications between the UA pilot and Air Traffic Control.

10. INFORMATION REPORTING

Aurora Flight Sciences shall provide the following information to Kenneth.d.Davis@faa.gov on a monthly basis.

- a. Number of flights conducted under this certificate.

CANCELLED 02 01 08

July 26, 2007

- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware or software), if any.
- d. Deviations from ATC instructions.
- e. Unintended entry into lost link flight mode that results in a course change.

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11. REVISIONS

- a. The experimental certificate, Aurora Flight Sciences FAA-accepted program letter, and operating limitations cannot be reissued, renewed, or revised without first notifying the Production and Airworthiness Division, AIR-200 and application being made to the New Cumberland MIDO. AIR-200 will be responsible for headquarters internal coordination with the Aircraft Certification Service, Flight Standards Service, Air Traffic, Office of Chief Council, and Office of Rulemaking.
- b. No Certificate of Authorization or Waiver may be issued in association with this Experimental Certificate unless it is coordinated with AIR-200.
- c. The provisions and limitations annotated in this operational approval may be amended or cancelled at any time as deemed necessary by the FAA.
- d. All revisions to Aurora FAA-accepted GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision must be reviewed and accepted by the Washington Flight Standards District Office.

12. UA MODIFICATIONS

- a. All software and system changes will be documented as part of the normal maintenance procedures and be available for inspection. All software and system changes shall be inspected and approved per Aurora's maintenance procedures. All software changes to the aircraft and GCS are categorized as major changes, and shall be provided in summary form at the time they are incorporated.
- b. All major modifications, whether performed under the experimental certificate, COA, or other authorizations, that could potentially effect the safe operation of the system, shall be documented and shall be provided to the FAA prior to operating the aircraft under this certificate. Major modifications incorporated under COA or other authorization need only be provided if the aircraft is flown under these authorizations during the effective period of the experimental certificate.
- c. All information requested shall be provided to AIR-200.

End of Limitations.

July 26, 2007



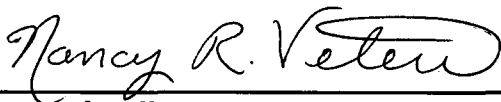
Henry K. Cooper
Aviation Safety Inspector
New Cumberland Manufacturing Inspection District Office
Bldg. 201, Rm. 102,
400 Airport Drive
New Cumberland, PA 17070

Date: July 26, 2007

The Special Airworthiness Certificate and accompanying Operating Limitations expire on July 25, 2008.

I certify that I have read and understand the operating limitations, and conditions, that are a part of the Special Airworthiness Certificate; FAA Form 8130-7 issued on July 26, 2007, for the purpose of Research and Development, Market Survey and/or Crew Training.

This Special Airworthiness Certificate is issued for the Aurora Flight Sciences Systems, UA model "GE-50," serial number AU-028, registration number N828AU.



Applicant:

Date: July 26, 2007

Name: Nancy R. Vetere

Title: UAV Flight Operations Manager

Company: Aurora Flight Sciences

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FAA FORM 8130-6, APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE

Form Approved O.M.B. No. 2120-0018
09/30/2007

 U.S. Department of Transportation Federal Aviation Administration		APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE		INSTRUCTIONS - Print or type. Do not write in shaded areas; these are for FAA use only. Submit original only to an authorized FAA Representative. If additional space is required, use attachment. For special flight permits complete Sections II, VI and VII as applicable.			
		1. REGISTRATION MARK	2. AIRCRAFT BUILDER'S NAME (Make)	3. AIRCRAFT MODEL DESIGNATION	4. YR. MFR.	FAA CODING	
		5. AIRCRAFT SERIAL NO.	6. ENGINE BUILDER'S NAME (Make)	7. ENGINE MODEL DESIGNATION		06100IN 20501	
		8. NUMBER OF ENGINES	9. PROPELLER BUILDER'S NAME (Make)	10. PROPELLER MODEL DESIGNATION			
11. AIRCRAFT (Check if applicable)		IMPORT					
APPLICATION IS HEREBY MADE FOR: (Check applicable items)							
A 1		STANDARD AIRWORTHINESS CERTIFICATE (Indicate Category)		<input type="checkbox"/> NORMAL <input type="checkbox"/> UTILITY <input type="checkbox"/> ACROBATIC <input type="checkbox"/> TRANSPORT <input type="checkbox"/> COMMUTER <input type="checkbox"/> BALLOON <input type="checkbox"/> OTHER			
B		<input checked="" type="checkbox"/>		SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)			
II. CERTIFICATION REQUESTED		7		PRIMARY			
		9		LIGHT-SPORT (Indicate Class)			
		2		LIMITED			
		5		PROVISIONAL (Indicate Class)			
		3		1		CLASS I	
				2		CLASS II	
				RESTRICTED (Indicate operation(s) to be conducted)			
		4		1		AGRICULTURE AND PEST CONTROL	
				2		AERIAL SURVEY	
				3		AERIAL ADVERTISING	
				4		FOREST (Wildlife Conservation)	
				5		PATROLLING	
		8		0		OTHER (Specify)	
				1		RESEARCH AND DEVELOPMENT	
				2		AMATEUR BUILT	
3				EXHIBITION			
4				AIR RACING			
5		CREW TRAINING					
6		MARKET SURVEY					
0		TO SHOW COMPLIANCE WITH THE CFR					
8		OPERATING LIGHT-SPORT		8A Existing Aircraft without an airworthiness certificate & do not meet § 103.1 8B Operating Light-Sport Kit-Built 8C Operating light-sport previously issued special light-sport category airworthiness certificate under § 21.190			
8		1 FERRY FLIGHT FOR REPAIRS, ALTERATIONS, MAINTENANCE, OR STORAGE					
		2 EVACUATION FROM AREA OF IMPENDING DANGER					
		3 OPERATION IN EXCESS OF MAXIMUM CERTIFICATED TAKE-OFF WEIGHT					
		4 DELIVERING OR EXPORTING		5 PRODUCTION FLIGHT TESTING			
		6 CUSTOMER DEMONSTRATION FLIGHTS					
C 6		MULTIPLE AIRWORTHINESS CERTIFICATE (check ABOVE "Restricted Operation" and "Standard" or "Limited" as applicable)					
III. OWNER'S CERTIFICATION		A. REGISTERED OWNER (As shown on certificate of aircraft registration)					
		NAME Aurora Flight Sciences Corporation			ADDRESS 9950 Wakeman Drive Manassas, VA 20110		
		B. AIRCRAFT CERTIFICATION BASIS (Check applicable blocks and complete items as indicated)					
		AIRCRAFT SPECIFICATION OR TYPE CERTIFICATE DATA SHEET (Give No. and Revision No.) N/A			AIRCRAFT LISTING (Give page number(s)) N/A		
		AIRCRAFT LISTING (Give page number(s)) N/A			SUPPLEMENTAL TYPE CERTIFICATE (List number of each STC incorporated) N/A		
		C. AIRCRAFT OPERATION AND MAINTENANCE RECORDS					
		<input checked="" type="checkbox"/> CHECK IF RECORDS IN COMPLIANCE WITH 14 CFR Section 91.417		TOTAL AIRFRAME HOURS 4.4 hrs		EXPERIMENTAL ONLY (Enter hours flown since last certificate issued or renewal) 0 hrs	
		D. CERTIFICATION - I hereby certify that I am the registered owner (or his agent) of the aircraft described above, that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 et seq. and applicable Federal Aviation Regulations, and that the aircraft has been inspected and is airworthy and eligible for the airworthiness certificate requested.					
		DATE OF APPLICATION 7/26/2007		NAME AND TITLE (Print or type) Nancy R. Vetere, UAV Flight Operations Manager		SIGNATURE 	
		7/26/2007		Nancy R. Vetere, UAV Flight Operations Manager			
IV. INSPECTION AGENCY VERIFICATION		A. THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSPECTED AND FOUND AIRWORTHY BY: (Complete the section only if 14 CFR part 11.183(d) applies.)					
		2		14 CFR part 121 CERTIFICATE HOLDER (Give Certificate No.)		3	
		5		AIRCRAFT MANUFACTURER (Give name or firm)		6	
		DATE		TITLE		SIGNATURE	
		7/26/2007		ANE-MIDO-44			
V. FAA REPRESENTATIVE CERTIFICATION		(Check ALL applicable block items A and B)				<input checked="" type="checkbox"/> THE CERTIFICATE REQUESTED	
		A. I find that the aircraft described in Section I or VII meets requirements for				4	
		B. Inspection for a special permit under Section VII was conducted by:				AMENDMENT OR MODIFICATION OF CURRENT AIRWORTHINESS CERTIFICATE	
		DATE		DISTRICT OFFICE		DESIGNEE'S SIGNATURE AND NO.	
		7/26/2007		ANE-MIDO-44		HENRY K. COOPER	

VI. PRODUCTION FLIGHT TESTING	A. MANUFACTURER					
	NAME			ADDRESS		
	B. PRODUCTION BASIS <i>(Check applicable item)</i>					
			PRODUCTION CERTIFICATE <i>(Give production certificate number)</i> →			
			TYPE CERTIFICATE ONLY			
			APPROVED PRODUCTION INSPECTION SYSTEM			
C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS						
DATE OF APPLICATION		NAME AND TITLE <i>(Print or Type)</i>		SIGNATURE		
VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST	A. DESCRIPTION OF AIRCRAFT					
	REGISTERED OWNER			ADDRESS		
	BUILDER <i>(Make)</i>			MODEL		
	SERIAL NUMBER			REGISTRATION MARK		
	B. DESCRIPTION OF FLIGHT CUSTOMER DEMONSTRATION FLIGHTS <input type="checkbox"/> <i>(Check if applicable)</i>					
	FROM			TO		
	VIA			DEPARTURE DATE	DURATION	
	C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT					
						PILOT CO-PILOT FLIGHT ENGINEER OTHER <i>(Specify)</i>
	D. THE AIRCRAFT DOES NOT MEET THE APPLICABLE AIRWORTHINESS REQUIREMENTS AS FOLLOWS:					
	E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED NECESSARY FOR SAFE OPERATION: <i>(Use attachment if necessary)</i>					
	F. CERTIFICATION – I hereby certify that I am the registered owner (or his agent) of the aircraft described above; that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 <u>et seq.</u> and applicable Federal Aviation Regulations; and that the aircraft has been inspected and is safe for the flight described.					
DATE		NAME AND TITLE <i>(Print or Type)</i>		SIGNATURE		
VIII. AIRWORTHINESS DOCUMENTATION (FAA/DESIGNEE use only)	✓	A. Operating Limitations and Markings in Compliance with 14 CFR Section 91.9, as applicable.			G. Statement of Conformity, FAA Form 8130-9 <i>(Attach when required)</i>	
	✓	B. Current Operating Limitations Attached			H. Foreign Airworthiness Certification for Import Aircraft <i>(Attach when required)</i>	
	✓	C. Data, Drawings, Photographs, etc. <i>(Attach when required)</i>			I. Previous Airworthiness Certificate Issued in Accordance with 14 CFR Section _____ CAR _____ <i>(Original Attached)</i>	
	✓	D. Current Weight and Balance information Available in Aircraft				
		E. Major Repair and Alteration, FAA Form 337 <i>(Attach when required)</i>			✓ J. Current Airworthiness Certificate Issued in Accordance with 14 CFR Section 21.191 (a) (c) (f) <i>(Copy Attached)</i>	
	✓	F. This inspection Recorded in Aircraft Records			K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 <i>(Attach when required)</i>	

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
SPECIAL AIRWORTHINESS CERTIFICATE

A	CATEGORY/DESIGNATION EXPERIMENTAL (UNMANNED AIRCRAFT)	
	PURPOSE Research & Development/Market Svy./Crew Training	
B	MANUFACTURER	NAME N/A
		ADDRESS N/A
C	FLIGHT	FROM N/A
		TO N/A
D	N- 828AU	SERIAL NO. AU-028
	BUILDER Aurora Flight Sciences	MODEL GE-50
E	DATE OF ISSUANCE July 26, 2007	EXPIRY July 25, 2008
	OPERATING LIMITATIONS DATED 07/26/07	ARE A PART OF THIS CERTIFICATE
	SIGNATURE OF FAA REPRESENTATIVE  Henry K. Cooper	DESIGNATION OR OFFICE NO. ANE-MIDO-44

Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

A	This airworthiness certificate is issued under the authority of the Federal Aviation Act of 1958 and the Federal Aviation Regulations (FAR).
B	This airworthiness certificate authorizes the manufacturer named on the reverse side to conduct production flight tests, and only production flight tests, of aircraft registered in his name. No person may conduct production flight tests under this certificate: (1) Carrying persons or property for compensation or hire; and/or (2) Carrying persons not essential to the purpose of the flight.
C	This airworthiness certificate authorizes the flight specified on the reverse side for the purpose shown in Block A.
D	This airworthiness certificate certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to meet the requirements of the applicable FAR. The aircraft does not meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention On International Civil Aviation. No person may operate the aircraft described on the reverse side: (1) except in accordance with the applicable FAR and in accordance with conditions and limitations which may be prescribed by the Administrator as part of this certificate; (2) over any foreign country without the special permission of that country.
E	Unless sooner surrendered, suspended, or revoked, this airworthiness certificate is effective for the duration and under the conditions prescribed in FAR Part 21, Section 21.181 or 21.217.



U.S. Department
of Transportation
**Federal Aviation
Administration**

New Cumberland Manufacturing Inspection District Office
Bldg. 201, Rm. 102,
400 Airport Drive
New Cumberland, PA 17070

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EXPERIMENTAL - OPERATING LIMITATIONS
RESEARCH AND DEVELOPMENT, CREW TRAINING, and MARKET SURVEY.

REGISTERED OWNER NAME: AURORA FLIGHT SCIENCES	AIRCRAFT BUILDER: AURORA FLIGHT SCIENCES
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Y 100

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g. This UA must display the word "EXPERIMENTAL" in accordance with § 45.23(b) or exemption thereto.

h. Prior to conducting initial GE-50 flight operations, Aurora must forward an electronic copy copy of the GE-50 Program Letter, Special Airworthiness Certificate, and Operating Limitations to: Lynda Otting, FAA Air Traffic Representative, Eastern Service Center, System Support, 1701 Columbia Ave, College Park, GA 30337, telephone (404) 305-5577, email Lynda.G.Otting@faa.gov.

i. Section 47.45 requires that the FAA Aircraft Registry must be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by submitting AC Form 8050-1 to AFS-750 in Oklahoma City, Oklahoma.

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5414 Ritchie Rd
Bealeton, VA 22712

b. The flight test operations area authorized for the UA at Flying Circus Aerodrome (3VA3) are graphically depicted below.

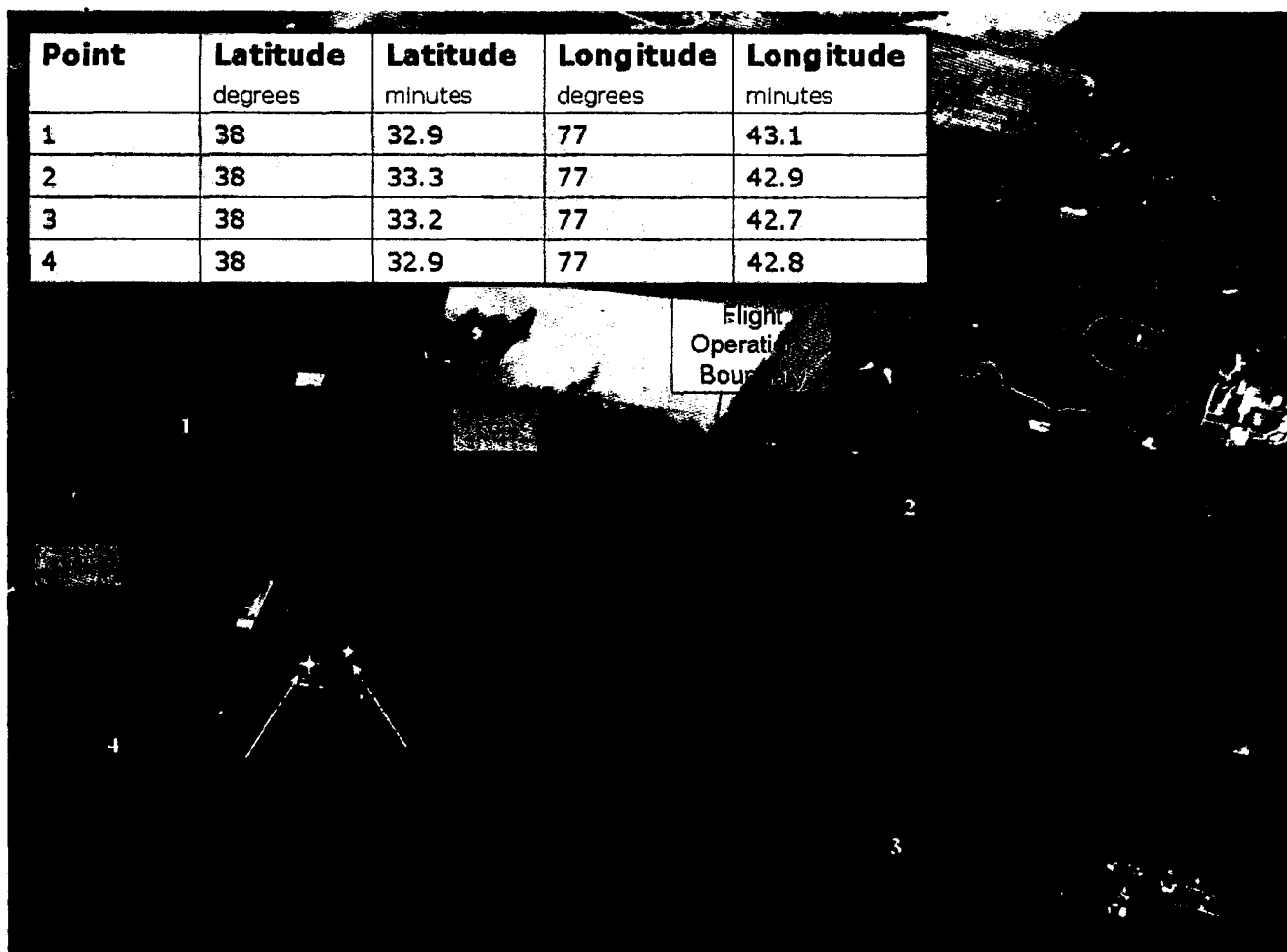


Figure 1. Proposed operations area at Flying Circus Aerodrome

COPY

c. Aurora shall notify the airport manager/owner, prior to each operation, for coordination with any other potential activity in the vicinity.

d. The UA PIC shall ensure that all UA flight operations remain within the lateral and vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3). Furthermore, the UA PIC shall take into account all factors that may affect the capability of remaining within the flight test operations area at The Flying Circus Aerodrome (3AV3). This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

e. Any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at shall be immediately concluded, and Air Traffic Control notified of the flight status. Aurora shall, at the conclusion of the flight, immediately notify the Manager of the Unmanned Aircraft Program Office AIR-160, of any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at The Flying Circus Aerodrome (3AV3). The point of contact is Mr. Doug Davis. Mr. Davis can be reached at 202-385-4636 or email kenneth.d.davis@faa.gov.

f. Further flight operations shall not be conducted until the incident is reviewed by AIR-160, and authorization to resume operations is received.

g. Aircraft operations for the purpose of market survey cannot be performed until after 50 flight hours have been accomplished. A logbook entry is required as evidence of compliance.

4. UA PILOTS and OBSERVERS:

a. All flight operations shall have a designated UA Pilot-In-Command (PIC). Any additional UA pilot(s) assigned to a crew station during UA flight operations shall be considered a Supplemental UA Pilot. The UA PIC shall have responsibility over each flight conducted and be held accountable for the UA flight operation.

b. The UA PIC is responsible for the safety of the UA as well as persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground. The UA PIC shall avoid densely populated areas (§ 91.319) and exercise increased vigilance when operating within or in the vicinity of published airway boundaries.

c. The UA PIC shall hold, at a minimum, an FAA Private Pilot certificate, with either an Airplane or Rotorcraft category, Single or Multiengine class ratings, or military equivalent, and have it in his/her possession.

d. The Supplemental Pilot need not be a certificated pilot, but must have successfully completed a recognized Private Pilot ground school and successfully completed the private pilot written test.

e. The UA PIC shall have operational override capability over any Supplemental Pilot, regardless of position.

f. The UA PIC shall maintain currency in manned aircraft in accordance with § 61.57.

g. The UA PIC shall have a Flight Review in manned aircraft every 24 calendar months in accordance with § 61.56.

h. All UA Pilots shall maintain currency in unmanned aircraft in accordance with Aurora GoldenEye-50 Operator Training AR07-102.

i. All UA pilots shall have a Flight Review in unmanned aircraft every 24 calendar months in accordance with Aurora company procedures.

j. All flight operations conducted shall have an Observer to perform traffic avoidance and visual observation to fulfill the "see and avoid" requirement of § 91.113.

k. All Observers shall:

1) Hold at a minimum, an FAA Private Pilot certificate or military equivalent (an Observer does not require currency as a pilot); or,

2) In lieu of a Pilot certificate, have successfully completed specific Observer training acceptable to the FAA.

l. The UA PIC and Observer(s) must have in their possession a valid third class (or higher) airman medical certificate that has been issued under 14 CFR part 67.

m. UA Pilots and Observers shall perform crew duties for only one UA at a time.

n. All Observers must be thoroughly trained, familiar with, and possess, operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes as outlined in the Aurora Program Letter.

o. Observer Responsibilities: The task of the Observer is to provide the UA pilot(s) with instructions to maneuver the UA clear of any potential collision with other traffic. Observer duties require continuous visual contact with the UA at all times in such a manner as to be able to discern UA attitude and trajectory in relation to conflicting traffic. At no time shall Observers conduct their duties more than 1300 feet laterally or 400 feet vertically from the UA.

5. COMMUNICATIONS:

a. Appropriate Air Traffic frequencies shall be monitored during flight operations.

b. All UAS crew positions must maintain two-way communications with each other during all operations. If unable to maintain two-way communication, the UA will be expeditiously returned to its base of operations while remaining within the Primary Containment Area, and conclude the flight operation.

c. Spectrum used for operation and control of the UA must be approved by the Federal Communications Commission or other appropriate government oversight agency prior to operations being conducted.

6. FLIGHT CONDITIONS:

a. All flight operations must be conducted during daylight hours in visual meteorological conditions (VMC), including cloud clearance minimums as specified in § 91.155. Flight operation in instrument meteorological conditions (IMC) is not permitted.

b. The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight (§ 91.303).

c. Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.

d. The UA and shall be equipped with operable strobe/anti-collision lights and shall be illuminated during operations.

e. Aurora Flight Sciences must request the issuance of a Notice to Airman (NOTAM) through the local Automated Flight Service Station at least twenty-four 24 hours prior to flight operation.

7. FLIGHT TERMINATION & LOST LINK PROCEDURES:

- a. In accordance with Aurora Flight Sciences Program Letter, dated July 26, 2007, flight termination must be initiated at any point that safe operation of the UA cannot be maintained.
- b. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the flight test area. The observer will be immediately notified of the lost link condition and the expected UA response.

8. MAINTENANCE:

- a. The GE-50 UAS must not be operated unless it is inspected and maintained in accordance with the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision. Maintenance must be recorded in the UAS maintenance records.
- b. No person may operate this UAS unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with, FAA-accepted, GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, and was found to be in a condition for safe operation. This inspection will be recorded in the UAS maintenance records.
- c. Only those individuals authorized by Aurora Flight Sciences, and acceptable to the FAA, may perform inspections required by these operating limitations.
- d. Inspections of the UAS must be recorded in the UAS maintenance records showing the following, or a similarly worded, statement: "I certify that this UAS has been inspected on [insert date] in accordance with the scope and detail of the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007." The entry will include the UAS's total time-in-service, and the name and signature of the person performing the inspection and the date the inspection was performed.
- e. UAS instruments and equipment installed must be inspected and maintained in accordance with the requirements of the GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

9. EQUIPAGE:

The GE-50 Ground Control Station will be equipped with two-way communications equipment allowing for communications between the UA pilot and Air Traffic Control.

10. INFORMATION REPORTING

Aurora Flight Sciences shall provide the following information to Kenneth.d.Davis@faa.gov on a monthly basis.

- a. Number of flights conducted under this certificate.

- b. Pilot duty time per flight.
- c. Unusual equipment malfunctions (hardware or software), if any.
- d. Deviations from ATC instructions.
- e. Unintended entry into lost link flight mode that results in a course change.

11. REVISIONS

- a. The experimental certificate, Aurora Flight Sciences FAA-accepted program letter, and operating limitations cannot be reissued, renewed, or revised without first notifying the Production and Airworthiness Division, AIR-200 and application being made to the New Cumberland MIDO. AIR-200 will be responsible for headquarters internal coordination with the Aircraft Certification Service, Flight Standards Service, Air Traffic, Office of Chief Council, and Office of Rulemaking.
- b. No Certificate of Authorization or Waiver may be issued in association with this Experimental Certificate unless it is coordinated with AIR-200.
- c. The provisions and limitations annotated in this operational approval may be amended or cancelled at any time as deemed necessary by the FAA.
- d. All revisions to Aurora FAA-accepted GE-50 Preflight Inspection report AR07-069A, and the GE-50 Postflight Inspection report AR07-070A both dated July 26, 2007, or later FAA-accepted revision must be reviewed and accepted by the Washington Flight Standards District Office.

12. UA MODIFICATIONS

- a. All software and system changes will be documented as part of the normal maintenance procedures and be available for inspection. All software and system changes shall be inspected and approved per Aurora's maintenance procedures. All software changes to the aircraft and GCS are categorized as major changes, and shall be provided in summary form at the time they are incorporated.
- b. All major modifications, whether performed under the experimental certificate, COA, or other authorizations, that could potentially effect the safe operation of the system, shall be documented and shall be provided to the FAA prior to operating the aircraft under this certificate. Major modifications incorporated under COA or other authorization need only be provided if the aircraft is flown under these authorizations during the effective period of the experimental certificate.
- c. All information requested shall be provided to AIR-200.

End of Limitations.

COPY^{July 26, 2007}



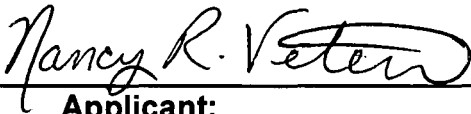
Henry K. Cooper
Aviation Safety Inspector
New Cumberland Manufacturing Inspection District Office
Bldg. 201, Rm. 102,
400 Airport Drive
New Cumberland, PA 17070

Date: July 26, 2007

The Special Airworthiness Certificate and accompanying Operating Limitations expire on July 25, 2008.

I certify that I have read and understand the operating limitations, and conditions, that are a part of the Special Airworthiness Certificate; FAA Form 8130-7 issued on July 26, 2007, for the purpose of Research and Development, Market Survey and/or Crew Training.

This Special Airworthiness Certificate is issued for the Aurora Flight Sciences Systems, UA model "GE-50," serial number AU-028, registration number N828AU.



Applicant:

Date: July 26, 2007

Name: Nancy R. Vetere

Title: UAV Flight Operations Manager

Company: Aurora Flight Sciences



GoldenEye-50

Revised Program Letter For Experimental Certification (Flying Circus Aerodrome Bealeton, VA)

**Prepared for
Federal Aviation Administration**

Contract Number: N/A

Aurora Report Number: AR07-076

July 26, 2007

**Prepared by
Aurora Flight Sciences Corporation
9950 Wakeman Drive
Manassas, Virginia 20110**

www.aurora.aero

PROGRAM LETTER FOR UNMANNED AIRCRAFT SYSTEMS

REGISTERED OWNER NAME:	AURORA FLIGHT SCIENCES CORPORATION
AIRCRAFT BUILDER:	AURORA FLIGHT SCIENCES CORPORATION
REGISTERED OWNER ADDRESS:	9950 WAKEMAN DRIVE MANASSAS, VA 20110
YEAR MANUFACTURED:	2006
AIRCRAFT DESCRIPTION:	DUCTED FAN VTOL UNMANNED AERIAL VEHICLE
AIRCRAFT SERIAL NUMBER:	AU- 028
AIRCRAFT REGISTRATION:	N828AU
AIRCRAFT MODEL DESIGNATION:	GOLDENEYE 50 (GE-50)
ENGINE MODEL:	DESERT AIRCRAFT DA-50-R SINGLE-CYLINDER 2-CYCLE ENGINE
PROPELLER MODEL:	CUSTOM 7-BLADE LIFT FAN

1. DEFINE THE EXPERIMENTAL PURPOSE(S) UNDER WHICH THE AIRCRAFT IS TO BE OPERATED (14 CFR § 21.191).

In accordance with the above referenced regulation, Aurora Flight Sciences will operate the GoldenEye unmanned aerial vehicles for the purpose of research and development, crew training, and market surveys.

2. DESCRIBE THE PURPOSE/SCOPE OF THE EXPERIMENTAL PROGRAM FOR EACH 14 CFR § 21.191 EXPERIMENTAL PURPOSE SOUGHT (14 CFR §§ 21.193(b)(d)).

(1) Research and development – Aurora will fly the experimental GoldenEye vehicle to flight test the vehicle and to expand the flight envelope.

(2) Crew Training – Aurora will fly the vehicles as part of the company's training program to qualify crewmembers to operate the vehicles and to increase flying proficiency.

(3) Market Surveys – Aurora will fly the vehicle for sales demonstrations for potential customers.

3. DEFINE THE AREA(S) IN WHICH THE EXPERIMENTAL FLIGHTS WILL BE CONDUCTED.

a. Describe the areas over which the flights are to be conducted and address of base operation (14 CFR § 21.193(d)(3)).

Flights will be conducted at Flying Circus Aerodrome, Bealeton, VA

b. Identify all proposed flight areas using latitude and longitude on aeronautical maps.

Flying Circus Aerodrome Bealeton, VA – Identifier 3VA3

POINT	LATITUDE degrees	LATITUDE minutes	LONGITUDE degrees	LONGITUDE minutes
1	38	32.9	77	43.1
2	38	33.3	77	42.9
3	38	33.2	77	42.7
4	38	32.9	77	42.8

Note: The coordinates listed in the above table correspond to Waypoints 1 through 4 in Figure 1 below.

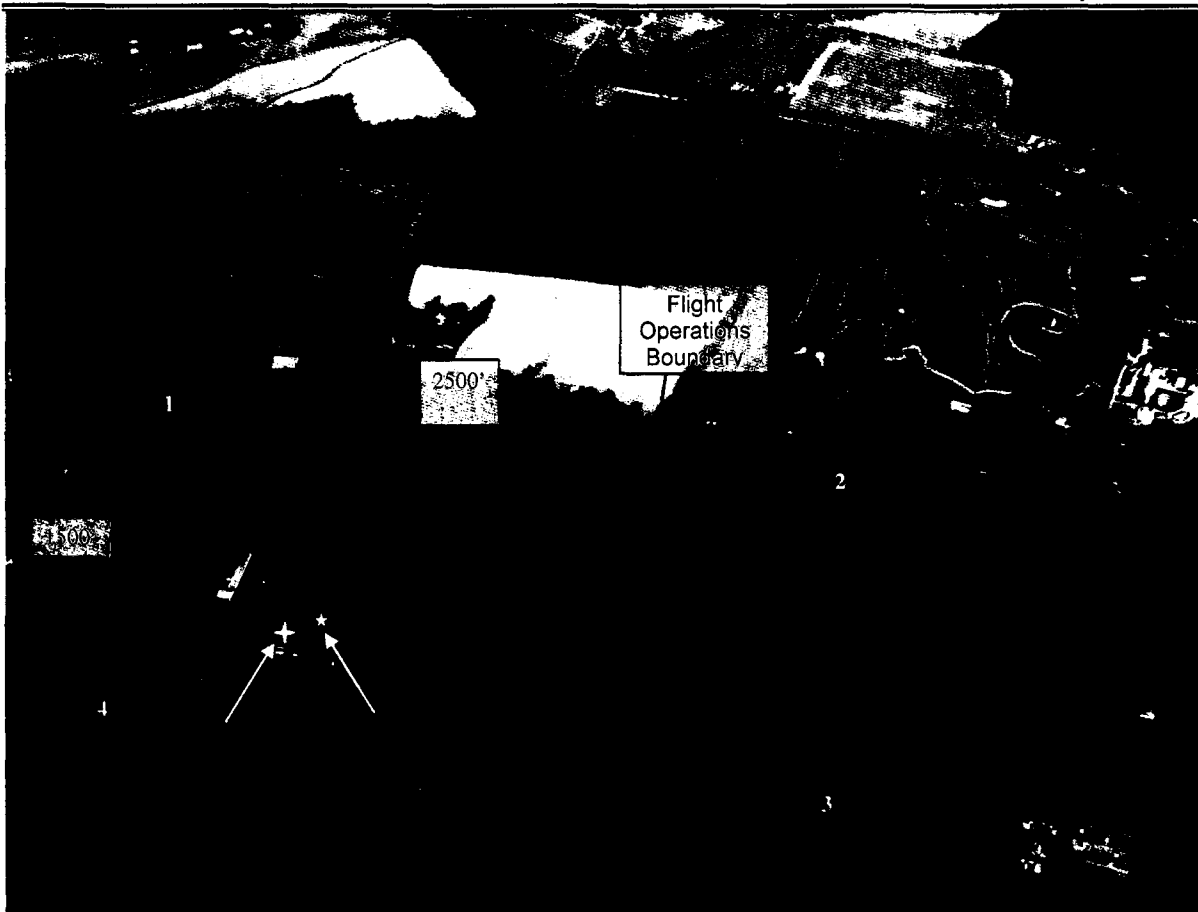


FIGURE (1) Flying Circus Aerodrome, Bealeton, Va

- a. Include information on airspeed, altitude, number of flight hours, number of flights and program duration for each test flight area.**

	Airport/ Area	Airspeed Max	Altitude Max	Flight Hours (estimated)	# of Flights (estimated)	Program Duration
	3VA3 (Bealeton)	60 kts	400 AGL	125	250	1 year

- b. What class of airspace will be used?**

Aurora expects flying to occur in Class G airspace.

c. Will minimum fuel requirements of 14 CFR § 91.151 be met?

Fuel burn is a precisely monitored flight test parameter. Current operations typically take place in a very small geographic area under visual conditions where immediate landing is possible, eliminating the need to fly an additional 30 or 45 minutes to find a suitable landing site.

d. Will flight-testing include payload testing?

Yes. The current vehicle payload is an E/O camera. Flight testing may include the testing of other payloads, except weaponized payloads are not expected to be tested.

e. What considerations need to be taken with regard to payloads?

None.

f. Will the aircraft perform any aerobatic maneuvers?

The vehicles do not perform aerobatic maneuvers. Flight maneuvers for the GoldenEye 50 vehicle include vertical takeoff and landing, hover flight, turns about the vertical axis, and climbs and descents.

g. Flight Conditions (e.g., VFR, IFR, VMS, etc.)

VFR

4. AIRCRAFT CONFIGURATION. Attach three-view drawings or three-view dimensioned photographs of the aircraft (14 CFR § 21.193(b)(4)). Describe Unmanned Aircraft System configuration including ground control station. Include a description of aircraft/system performance characteristics including:

See Figures (1 and 2) at the end of this document.

Aircraft system configuration is a ducted fan with torsionally disconnected "free wings". The engine for the GE-50 engine and propeller is enclosed in the fuselage.

The Ground control station consists of a laptop computer with proprietary software. It is connected to a datalink antenna. The ground control station (GCS) communicates with the air vehicle by means of a 900 MHz datalink. Payload imagery is sent from the aircraft to the GCS over a separate 2.4 GHz datalink. Flight commands and vehicle flight reports are up- and downlinked via the datalink. Vehicle state and health information is reported on the GCS laptop display to the air vehicle operator.

GoldenEye-50	
a. Wing span	4.4 feet
b. Length	2.9 feet
c. Powerplant	Desert Aircraft DA-50 single-cylinder 2-cycle engine
d. Max gross take off weight	21 lbs
e. Fuel capacity	30 fluid oz
f. Payload capacity	2 lbs
g. Max altitude	5000 feet
h. Endurance	20 minutes
i. Max airspeed	40 kts
j. Control/data frequencies	900MHz frequency-hopping spread- spectrum (command & control) 2.4GHz (payload data)
k. Guidance and navigation control	GuideStar computer (Athena Technologies Inc)

5. INSPECTION AND MAINTENANCE (14 CFR Part 91 Subpart E).

- a. Describe the inspection and maintenance program that will be used to maintain the aircraft and related systems (includes ground stations and/or other support systems).**

Due to the current phase of the GE-50 program, inspection and maintenance program is currently a continuous maintenance program rather than one based on periodic inspections. Aurora maintenance procedures include thorough pre-flight and post-flight checklists which cover all systems. Maintenance is also performed on the vehicle between flights. These checklists will be provided for review.

- b. Provide copy of flight manual, if applicable, current weight and balance report, equipment list.**

The GE-50 Standard Operating Procedures and weight and balance information will be provided for review.

6. PILOT QUALIFICATION (14 CFR §§ 61.3, 61.5).

- 1. Describe the qualifications for each pilot.**

Flights are supervised by at least one FAA certificated pilot. Aurora UAV operators have previous UAV experience through either commercial and/or military operations and many have been involved in the system design and development. All crewmembers undergo an Aurora qualification program.

Aurora Crewmember	Qualifications
Flight Director (PIC)	Airline Transport Pilot License Aurora trained GE50 flight director (PIC)
Operator (Supplemental Pilot)	Prior Military UAV Instructor Pilot Aurora trained operator
Operator (Supplemental Pilot)	GE50 Technician Aurora trained operator
Crew Chief	Aurora trained crew chief
Trainee	Prior Military UAV Standardization Instructor Pilot Aurora operator in training
Trainee	Private Pilot License, Aurora operator in training
Trainee	Aurora operator in training
Crew Chief	Aurora trained crew chief

b. Pilots must be qualified/certificated in the appropriate type of aircraft, i.e., rotorcraft, powered lift, fixed wing, etc.

Not applicable

c. Describe internal training program to qualify pilots.

Aurora's internal program consists of a company taught ground instruction, simulator training, ground and flight operations observation, and actual flight training under the supervision of an experienced UAV operator/instructor.

d. Describe the qualifications and training of observers.

Observers are Aurora trained and are knowledgeable on our operations and applicable flight rules.

7. AIRCRAFT MARKING (14 CFR Part 45). All Unmanned Aircraft System (UAS) are required to be registered and identified with the registration number. Aircraft must be marked in accordance with part 45.

Aircraft (N828AU) is marked IAW FAA direction.

8. ATC TRANSPONDER AND ALTITUDE REPORTING SYSTEM EQUIPMENT AND USE (14 CFR § 91.215). Describe the aircraft altitude reporting system.

There is no transponder on Aurora GoldenEye vehicles.

9. METHOD FOR SEE AND AVOID (14 CFR § 91.113a). In what manner, or by what means, will the requirement to “see and avoid” other aircraft be met? What performance will the chase plane have?

See and avoid capability is provided by the flight crew on the ground. Currently, the vehicle is maintained in line of sight at all times. The flight crew, complemented by range safety observers, scans the operations area for potential traffic conflicts and executes appropriate avoidance maneuvers if required. Aurora does not currently use a chase plane for GoldenEye flights.

10. SAFETY RISK MANAGEMENT. An applicant must provide a safety checklist that identifies and analyzes the hazards of UAS operations that are described in the program letter. Additional information is available by contacting the FAA Aviation Safety Inspector. A completed Safety Checklist will be submitted in conjunction with this document.

11. SYSTEM CONFIGURATION. Provide a description of aircraft system configuration and all on-board and ground-based equipment.

GoldenEye-50	
On-board equipment	<ul style="list-style-type: none"> Desert Aircraft DA-50 single-cylinder 2-cycle engine Athena Technologies flight controls computer 900MHz communications radio & antenna E/O camera 2.4GHz video transmitter & antenna
Ground-based equipment	<ul style="list-style-type: none"> GCS laptop computer 900MHz radio for command & control, with antenna 2.4GHz video receiver & antenna Optional second display case for engineering data and/or payload video Strap-down platform for pre-launch run-up checks Starter Ground power / charger unit

12. SYSTEM SAFETY - FLIGHT TERMINATION AND LOST LINK. What is the expectation of aircraft “Flight” if fuel is starved? Briefly describe/explain aircraft lost link and emergency recovery procedures. Provide a brief explanation of the flight termination system (FTS).

Like most VTOL aircraft, GoldenEye aircraft do not glide. If fuel is starved, the vehicle will descend almost vertically. If the communications uplink is lost, the vehicle will hover in place and then enter a vertical auto-land. Future software loads on the GoldenEye-50 may include the ability to climb or descend to a specified

altitude, turn to a specified heading, and/or return to a specified waypoint (such as the takeoff location).

The GE-50 has a "kill" command that may be issued by the flight crew. This command shuts down the aircraft's propulsion system, which will put the aircraft into a vertical descent and crash-landing.

13. COMMAND AND CONTROL. Provide a brief description of the system and/or procedures for command and control of the UAS.

GoldenEye-50 is operated using a touch screen laptop for command and control. The vehicle can be operated manually, in which the operator specifies direction of flight (forward, backward, left, right) and groundspeed, altitude and climb rate. Mission Scripts (plans) can also be uploaded prior to flight. These plans may include waypoint navigation, altitude changes, groundspeed changes, etc.

The vehicle is launched and recovered via one-button "takeoff" and "land" commands from the GCS. "Takeoff" directs the airplane to launch vertically and climb to a specified altitude, then hover in place until additional commands are received from the ground control station. "Land" directs the airplane to descend vertically until the ground sensors trigger, at which time the engine shuts down and the flight controls system is shutdown.

The vehicle will be operated in accordance with Aurora Report AR-07-068A, GoldenEye-50 Standard Operating Procedures, dated July 24, 2007.

14. CONTROL STATIONS. Provide a brief description of the ground/airborne stations used to control the UAS.

The GE50 system utilizes a computer for the ground control station. The laptop computer and the communications radios and antennas may be mounted in a vehicle or as a tabletop/handheld setup. There is also an additional computer that is sometimes used for additional data collection and system monitoring, but does not provide command and control capability.

15. CONTROL FREQUENCIES. Provide a description/listing of the frequencies used to control the UAS.

900 MHz (command and control)

2.4 GHz (payload video data, not used for control)

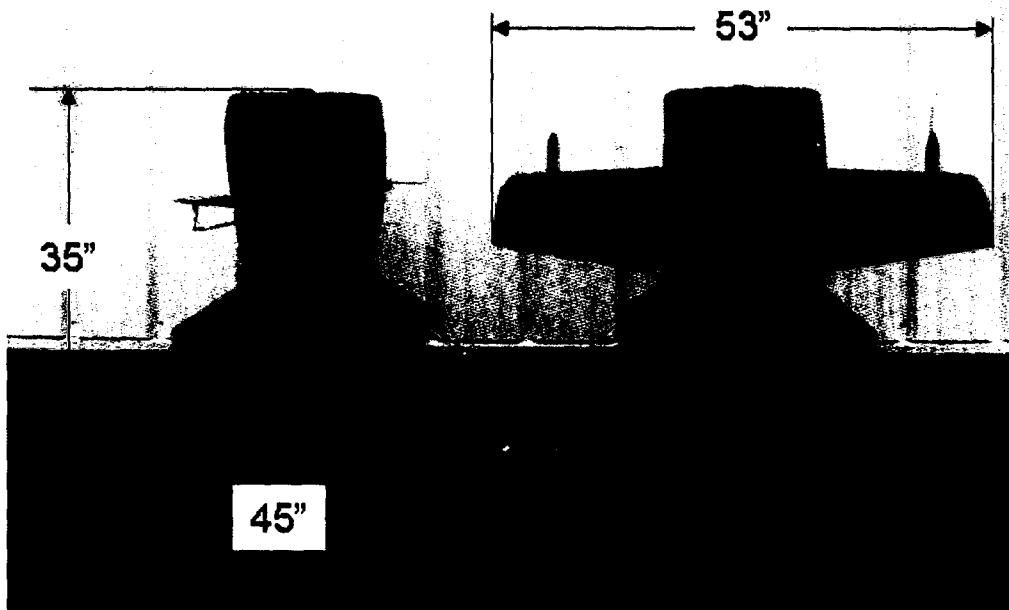


FIGURE (2) – GE50 Side and Bottom View

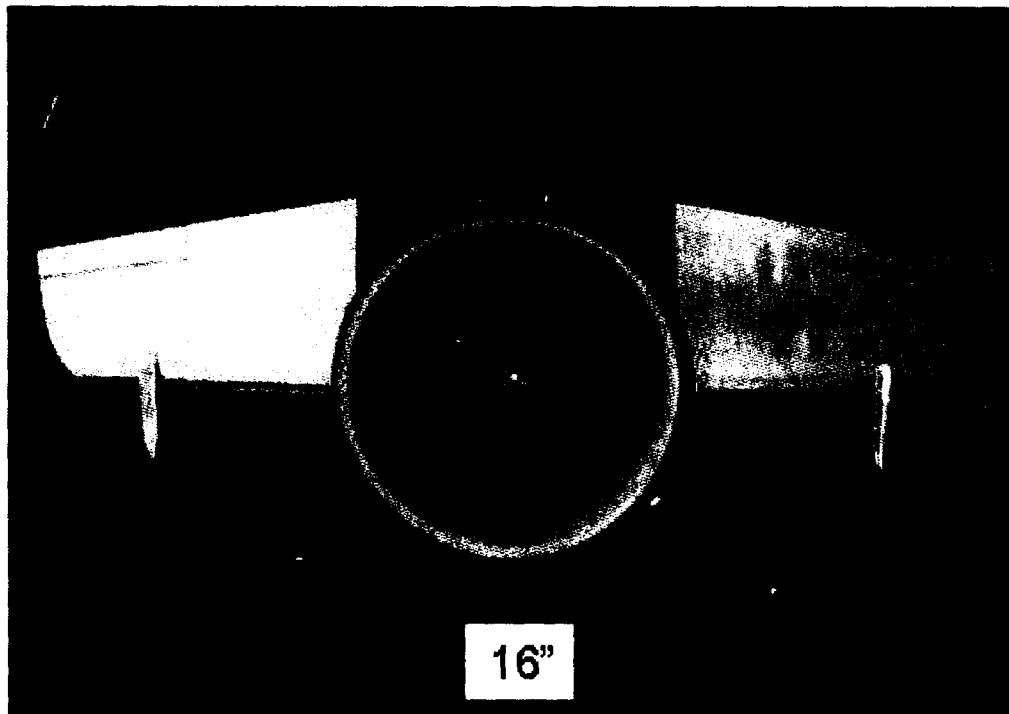


FIGURE (3) – GE-50 Front View

FAA FORM 8130-6, APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE

Form Approved O.M.B. No. 2120-0018
09/30/2007

 U.S. Department of Transportation Federal Aviation Administration		APPLICATION FOR U.S. AIRWORTHINESS CERTIFICATE				INSTRUCTIONS - Print or type. Do not write in shaded areas; these are for FAA use only. Submit original only to an authorized FAA Representative. If additional space is required, use attachment. For special flight permits complete Sections II, VI and VII as applicable.																																																																																																																																																																																																											
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		A. REGISTERED OWNER (As shown on certificate of aircraft registration)																																																																																																																																																																																																															
		NAME Aurora Flight Sciences Corporation				IF DEALER, CHECK HERE <input type="checkbox"/> ADDRESS 9950 Wakeman Drive; Manassas, VA 20110																																																																																																																																																																																																											
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		D. CERTIFICATION - I hereby certify that I am the registered owner (or his agent) of the aircraft described above, that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 et seq. and applicable Federal Aviation Regulations, and that the aircraft has been inspected and is airworthy and eligible for the airworthiness certificate requested.																																																																																																																																																																																																															
		DATE OF APPLICATION May 17, 2007		NAME AND TITLE (Print or type) Nancy R. Vetere, UAV Flight Operations Manager				SIGNATURE 																																																																																																																																																																																																									
IV. INSPECTION AGENCY VERIFICATION		A. THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSPECTED AND FOUND AIRWORTHY BY: (Complete the section only if 14 CFR part 21.183(d) applies.																																																																																																																																																																																																															
		2 14 CFR part 121 CERTIFICATE HOLDER (Give Certificate No.)		3 CERTIFICATED MECHANIC (Give Certificate No.)		6 CERTIFICATED REPAIR STATION (Give Certificate No.)																																																																																																																																																																																																											
		5 AIRCRAFT MANUFACTURER (Give name or firm)																																																																																																																																																																																																															
		DATE		TITLE				SIGNATURE																																																																																																																																																																																																									
V. FAA REPRESENTATIVE CERTIFICATION		(Check ALL applicable block items A and B)																																																																																																																																																																																																															
		A. I find that the aircraft described in Section I or VII meets requirements for <input checked="" type="checkbox"/> THE CERTIFICATE REQUESTED				4 AMENDMENT OR MODIFICATION OF CURRENT AIRWORTHINESS CERTIFICATE																																																																																																																																																																																																											
		B. Inspection for a special permit under Section VII was conducted by:				<input checked="" type="checkbox"/> FAA INSPECTOR																																																																																																																																																																																																											
		DATE 5/16/2007		DISTRICT OFFICE CE-42		DESIGNEE'S SIGNATURE AND NO. 4		FAA INSPECTOR'S SIGNATURE 																																																																																																																																																																																																									


VI. PRODUCTION FLIGHT TESTING	A. MANUFACTURER			
	NAME		ADDRESS	
	B. PRODUCTION BASIS <i>(Check applicable item)</i>			
			PRODUCTION CERTIFICATE <i>(Give production certificate number)</i> →	
			TYPE CERTIFICATE ONLY	
		APPROVED PRODUCTION INSPECTION SYSTEM		
C. GIVE QUANTITY OF CERTIFICATES REQUIRED FOR OPERATING NEEDS				
DATE OF APPLICATION		NAME AND TITLE <i>(Print or Type)</i>		SIGNATURE

VII. SPECIAL FLIGHT PERMIT PURPOSES OTHER THAN PRODUCTION FLIGHT TEST	A. DESCRIPTION OF AIRCRAFT			
	REGISTERED OWNER		ADDRESS	
	BUILDER <i>(Make)</i>		MODEL	
	SERIAL NUMBER		REGISTRATION MARK	
	B. DESCRIPTION OF FLIGHT			
	FROM		TO	
	VIA		DEPARTURE DATE	DURATION
	C. CREW REQUIRED TO OPERATE THE AIRCRAFT AND ITS EQUIPMENT			
		PILOT	CO-PILOT	FLIGHT ENGINEER
				OTHER <i>(Specify)</i>
	D. THE AIRCRAFT DOES NOT MEET THE APPLICABLE AIRWORTHINESS REQUIREMENTS AS FOLLOWS:			
	E. THE FOLLOWING RESTRICTIONS ARE CONSIDERED NECESSARY FOR SAFE OPERATION: <i>(Use attachment if necessary)</i>			
F. CERTIFICATION – I hereby certify that I am the registered owner (or his agent) of the aircraft described above; that the aircraft is registered with the Federal Aviation Administration in accordance with Title 49 of the United States Code 44101 <u>et seq.</u> and applicable Federal Aviation Regulations; and that the aircraft has been inspected and is safe for the flight described.				
DATE		NAME AND TITLE <i>(Print or Type)</i>		SIGNATURE

VIII. AIRWORTHINESS DOCUMENTATION (FAA/DESIGNEE use only)		A. Operating Limitations and Markings in Compliance with 14 CFR Section 91.9, as applicable.	G. Statement of Conformity, FAA Form 8130-9 <i>(Attach when required)</i>
	<input checked="" type="checkbox"/>	B. Current Operating Limitations Attached	H. Foreign Airworthiness Certification for Import Aircraft <i>(Attach when required)</i>
	<input checked="" type="checkbox"/>	C. Data, Drawings, Photographs, etc. <i>(Attach when required)</i>	I. Previous Airworthiness Certificate Issued in Accordance with 14 CFR Section _____ CAR _____ <i>(Original Attached)</i>
	<input checked="" type="checkbox"/>	D. Current Weight and Balance information Available in Aircraft	J. Current Airworthiness Certificate Issued in Accordance with 14 CFR Section 21.191 (a) (c) (f) _____ <i>(Copy Attached)</i>
	<input checked="" type="checkbox"/>	E. Major Repair and Alteration, FAA Form 337 <i>(Attach when required)</i>	K. Light-Sport Aircraft Statement of Compliance, FAA Form 8130-15 <i>(Attach when required)</i>
	<input checked="" type="checkbox"/>	F. This inspection Recorded in Aircraft Records	

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
SPECIAL AIRWORTHINESS CERTIFICATE

OK City

A	CATEGORY/DESIGNATION EXPERIMENTAL (UNMANNED AIRCRAFT)	
	PURPOSE Research and Development, Crew Training or Market Survey	
B	MANUFACTURER	NAME N/A
		ADDRESS N/A
C	FLIGHT	FROM N/A
		TO N/A
D	N- 828AU	SERIAL NO. AU-028
	BUILDER Aurora Flight Sciences	MODEL GE-50
E	DATE OF ISSUANCE 5/17/2007 EXPIRY 5/21/2008	
	OPERATING LIMITATIONS DATED 5/17/2007 ARE A PART OF THIS CERTIFICATE	
	SIGNATURE OF FAA REPRESENTATIVE  James A. Stutson	DESIGNATION OR OFFICE NO. ATL-MIDO-CE42

Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.



U.S. Department
of Transportation

**Federal Aviation
Administration**

Atlanta Manufacturing Inspection District Office
One Crown Center
1895 Phoenix Blvd, St. # 275
Atlanta, GA 30349

EXPERIMENTAL - OPERATING LIMITATIONS
RESEARCH AND DEVELOPMENT, and/or CREW TRAINING.

REGISTERED OWNER NAME: AURORA FLIGHT SCIENCES	AIRCRAFT BUILDER: AURORA FLIGHT SCIENCES
REGISTERED OWNER ADDRESS: 9950 WAKEMAN DRIVE MANASSAS, VA 20110	YEAR MANUFACTURED: 2006
AIRCRAFT DESCRIPTION: DUCTED FAN VTOL	AIRCRAFT SERIAL NUMBER: AU-028
AIRCRAFT REGISTRATION: N828AU	AIRCRAFT MODEL DESIGNATION: GOLDEN EYE 50
	ENGINE MODEL: DESERT AIRCRAFT DA-50
	PROPELLER MODEL: CUSTOM 7-BLADE LIFT FAN

The following conditions and limitations apply to all Aurora Flight Sciences Golden Eye 50, Unmanned Aircraft System flight operations, while operating in the National Airspace System (NAS). These conditions and limitations must be accessible to the pilot in command at all times.

1. GENERAL:

a. For the purposes of this Special Airworthiness Certificate and Operating Limitations, the Golden Eye 50 (GE-50) Unmanned Aircraft System (UAS), owned and operated by Aurora Flight Sciences, is considered to be an integrated system. The system is composed of the GE-50 aircraft, S/N AU-28, unmanned aircraft (UA) pilot(s), UA control station(s) (fixed or mobile), telemetry, navigation and communications equipment to include ground and airborne equipment that is used for control of the GE-50 UA. The ground equipment used for communication with Air Traffic Control during UAS operations is considered part of the UAS.

b. Unless otherwise specified in this document, the UA Pilot-in-Command (PIC) and Aurora shall comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91.

c. No person may operate this UA for other than the purpose of Research and Development, Market Survey and/or Crew Training, to accomplish the flight operations outlined in Aurora Flight Sciences Program Letter dated May 17, 2007 which describes compliance with § 21.193(d), and has been made available to the pilot in command of the UA. In addition, this UA must be operated in accordance with applicable air traffic and general operating rules of part 91, and all additional limitations herein prescribed under the provisions of § 91.319(e).

d. The UA PIC must determine that the UA is in a condition for safe operation and in a configuration appropriate for the purpose of the intended flight.

e. No person may operate this UA to carry property for compensation or hire.

f. This UA must be marked with its U.S. Registration number in accordance with 14 CFR part 45 or exemption thereto.

g. This UA must display the word "EXPERIMENTAL" in accordance with § 45.23(b) or exemption thereto.

h. Prior to conducting initial GE-50 flight operations, Aurora must forward an electronic copy of the GE-50 Program Letter, Special Airworthiness Certificate, and Operating Limitations to: Linda Otting, FAA Air Traffic Representative, Eastern Service Center, System Support, 1701 Columbia Ave, College Park, GA 30337, telephone (404) 305-5577, email Linda.Otting@faa.gov.

i. Section 47.45 requires that the FAA Aircraft Registry must be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by submitting AC Form 8050-1 to AFS-750 in Oklahoma City, Oklahoma.

2. PROGRAM LETTER: The Aurora Flight Sciences Program Letter, dated May 17, 2007, shall be used as a basis for the determination of the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions of these operating limitations.

3. AUTHORIZED FLIGHT OPERATIONS AREA:

a. The base of operations for the UA shall be:

Aurora Flight Sciences Corporation
2502 Airport Rd,
Columbus, MS 39701

b. The flight test operations area authorized for the UA at Golden Triangle Regional Airport are graphically depicted below. The coordinates for this area are:

Point	Latitude			Longitude		
	deg	min	sec	deg	min	sec
1	33	27	53.16	88	35	13.8
2	33	27	53.58	88	35	4.32
3	33	27	56.52	88	35	1.32
4	33	27	4.56	88	35	1.56
5	33	27	4.74	88	35	6.18
6	33	27	1.56	88	35	11.76
7	33	27	1.5	88	35	14.64

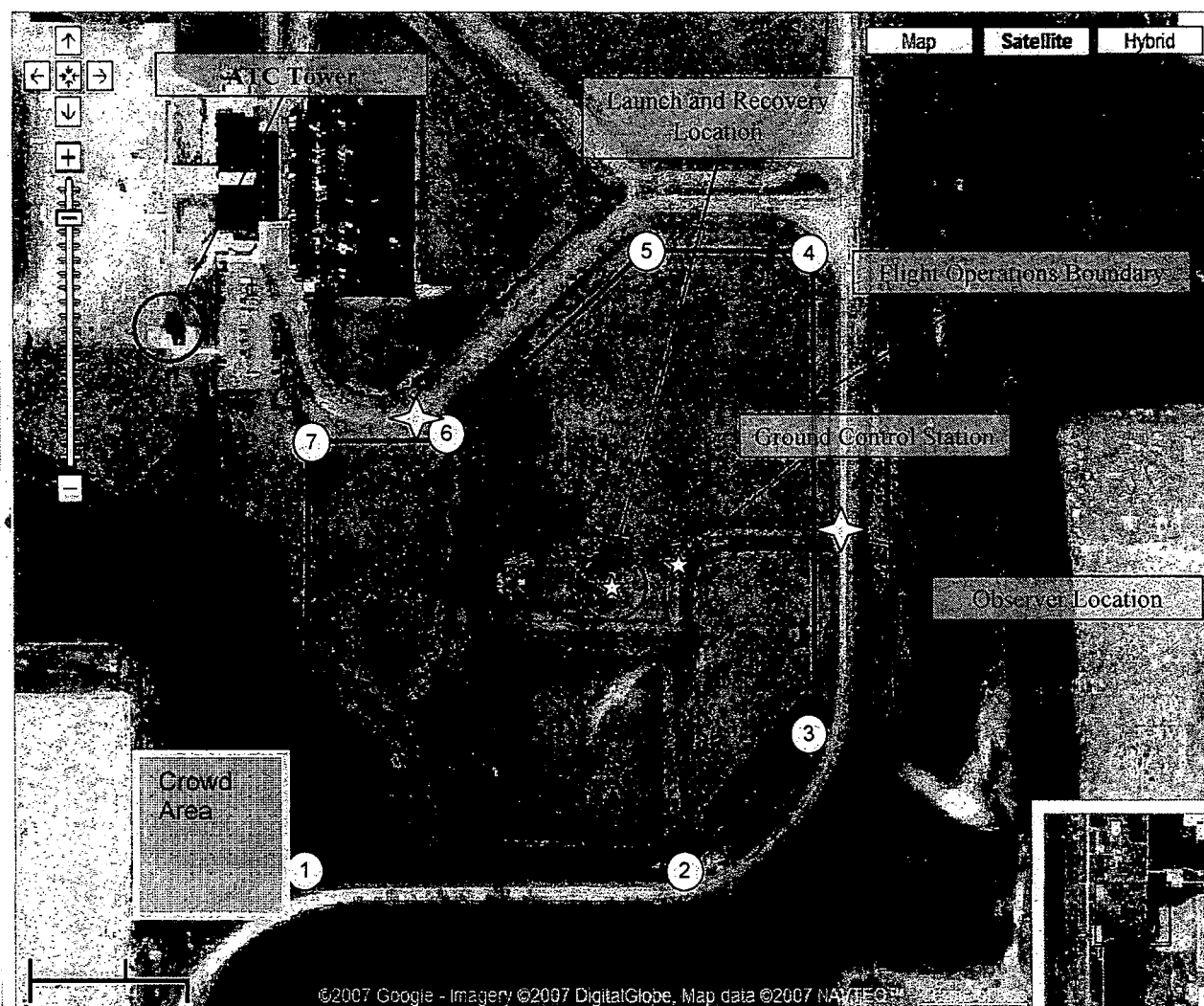


Figure 1. Proposed operations area at Golden Triangle Regional Airport.

c. Aurora is authorized to perform one test flight on May 18, 2007 to permit the FAA to validate the demonstration area. The duration of this flight test shall not exceed 5 minutes.

d. Flight operations for the flight demonstration on May 21, 2007 shall conform to the following requirements:

- 1) Aircraft hover only, at or below 60 feet Above Ground Level
- 2) Duration of entire flight operation not to exceed 5 minutes
- 3) Air Traffic Control will ensure the airspace is clear of traffic during flight operations in Class D airspace.
- 4) Aurora has immediate 2-way communication with ATC
- 5) Aircraft flight no closer than 300 feet to anyone on the ground
- 6) Designated crowd area shall be at least 500 feet from aircraft operations

e. The UA PIC shall ensure that all UA flight operations remain within the lateral and vertical boundaries of the flight test operations area at GTR. Furthermore, the UA PIC shall take into account all factors that may affect the capability of remaining within the flight test operations area at GTR. This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

f. Any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at GTR shall be immediately concluded, and Air Traffic Control notified of the flight status. Aurora shall, at the conclusion of the flight, immediately notify the Unmanned Aircraft Program Manager AIR-160, of any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at GTR. The point of contact is Mr. Doug Davis. Mr. Davis can be reached at 202-385-4636 or email kenneth.d.davis@faa.gov.

g. Further flight operations shall not be conducted until the incident is reviewed by AIR-160, and authorization to resume operations is received.

4. UA PILOTS and OBSERVERS:

a. All flight operations shall have a designated UA Pilot-In-Command (PIC). Any additional UA pilot(s) assigned to a crew station during UA flight operations shall be considered a Supplemental UA Pilot. The UA PIC shall have responsibility over each flight conducted and be held accountable for the UA flight operation.

b. The UA PIC is responsible for the safety of the UA as well as persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground. The UA PIC shall avoid densely populated areas (§ 91.319) and exercise increased vigilance when operating within or in the vicinity of published airway boundaries.

c. The UA PIC shall hold, at a minimum, an FAA Private Pilot certificate, with either an Airplane or Rotorcraft category, Single or Multiengine class ratings, or military equivalent, and have it in his/her possession.

d. The Supplemental Pilot need not be a certificated pilot, but must have successfully completed a recognized Private Pilot ground school or successfully completed the private pilot written test within 90 days of the date of these limitations.

e. The UA PIC shall have operational override capability over any Supplemental Pilot, regardless of position.

f. The UA PIC shall maintain currency in manned aircraft in accordance with § 61.57.

g. The UA PIC shall have a Flight Review in manned aircraft every 24 calendar months in accordance with § 61.56.

h. All UA Pilots shall maintain currency in unmanned aircraft in accordance with Aurora GoldenEye-50 Operator Training.

i. All UA pilots shall have a Flight Review in unmanned aircraft every 24 calendar months in accordance with Aurora company procedures.

j. All flight operations conducted shall have an Observer to perform traffic avoidance and visual observation to fulfill the "see and avoid" requirement of § 91.113.

k. All Observers shall:

1) Hold at a minimum, an FAA Private Pilot certificate or military equivalent (an Observer does not require currency as a pilot); or,

2) In lieu of a Pilot certificate, have successfully completed specific Observer training acceptable to the FAA.

l. Reserved

m. The UA PIC and Observer(s) must have in their possession a valid third class (or higher) airman medical certificate that has been issued under 14 CFR part 67.

n. UA Pilots and Observers shall perform crew duties for only one UA at a time.

o. All Observers must be thoroughly trained, familiar with, and possess, operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes as outlined in the Aurora Program Letter.

p. Observer Responsibilities: The task of the Observer is to provide the UA pilot(s) with instructions to maneuver the UA clear of any potential collision with other traffic. Observer duties require continuous visual contact with the UA at all times in such a manner as to be able to

discern UA attitude and trajectory in relation to conflicting traffic. At no time shall Observers conduct their duties more than 300 feet laterally from the UA.

5. COMMUNICATIONS:

- a. Aurora shall contact Air Traffic Control prior to flight operations.
- b. Appropriate Air Traffic frequencies shall be monitored during flight operations.
- c. All UAS crew positions must maintain two-way communications with each other during all operations. If unable to maintain two-way communication, the UA will be expeditiously returned to its base of operations while remaining within the Primary Containment Area, and conclude the flight operation.
- d. Spectrum used for operation and control of the UA must be approved by the Federal Communications Commission or other appropriate government oversight agency prior to operations being conducted.

6. FLIGHT CONDITIONS:

- a. All flight operations must be conducted during daylight hours in visual meteorological conditions (VMC), including cloud clearance minimums as specified in § 91.155. Flight operation in instrument meteorological conditions (IMC) is not permitted.
- b. The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight (§ 91.303).
- c. Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.
- d. Reserved
- e. Reserved.
- f. Reserved.
- g. Reserved.
- h. Aurora Flight Sciences must request the issuance of a Notice to Airman (NOTAM) through the local Automated Flight Service Station at least twenty-four 24 hours prior to flight operation.

7. FLIGHT TERMINATION & LOST LINK PROCEDURES:

- a. In accordance with Aurora Flight Sciences Program Letter, dated May 17, 2007, flight termination must be initiated at any point that safe operation of the UA cannot be maintained.

b. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the flight test area. The observer will be immediately notified of the lost link condition and the expected UA response.

8. MAINTENANCE:

a. The GE-50 UAS must not be operated unless it is inspected and maintained in accordance with the GE-50 Preflight Inspection report AR07-069, and the GE-50 Postflight Inspection report AR07-070 both dated August 9, 2005 or later FAA-accepted revision. Maintenance must be recorded in the UAS maintenance records.

b. No person may operate this UAS unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with, FAA-accepted, GE-50 Preflight Inspection report AR07-069, and the GE-50 Postflight Inspection report AR07-070 dated August 9, 2005, and was found to be in a condition for safe operation. This inspection will be recorded in the UAS maintenance records.

c. Only those individuals authorized by Aurora Flight Sciences, and acceptable to the FAA, may perform inspections required by these operating limitations.

d. Inspections of the UAS must be recorded in the UAS maintenance records showing the following, or a similarly worded, statement: "I certify that this UAS has been inspected on [insert date] in accordance with the scope and detail of the GE-50 Preflight Inspection report AR07-069, and the GE-50 Postflight Inspection report AR07-070 dated August 9, 2005." The entry will include the UAS's total time-in-service, and the name and signature of the person performing the inspection and the date the inspection was performed.

e. UAS instruments and equipment installed must be inspected and maintained in accordance with the requirements of the GE-50 Preflight Inspection report AR07-069, and the GE-50 Postflight Inspection report AR07-070 dated August 9, 2005. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

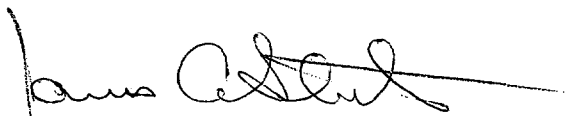
f. Reserved.

9. EQUIPAGE:

The GE-50 Ground Control Station will be equipped with two-way communications equipment allowing for communications between the UA pilot and Air Traffic Control.

10. REVISIONS and OTHER PROVISIONS:

No changes are authorized to the aircraft configuration for the flight tests.



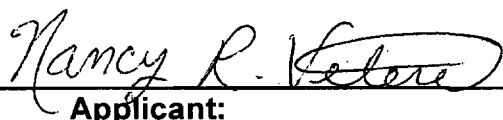
James Stutson
Aviation Safety Inspector
Atlanta Manufacturing Inspection District Office
One Crown Center
1895 Phoenix Blvd, St. # 275
Atlanta, GA 30349

Date: May 17, 2007

The Special Airworthiness Certificate and accompanying Operating Limitations expire on May 21, 2007.

I certify that I have read and understand the operating limitations, and conditions, that are a part of the Special Airworthiness Certificate; FAA Form 8130-7 issued on May 17, 2007, for the purpose of Research and Development, Market Survey and/or Crew Training.

This Special Airworthiness Certificate is issued for the Aurora Flight Sciences Systems, UA model "GE-50," serial number AU-028, registration number N828AU.


Applicant:

Date: May 17, 2007

Name: Nancy R. Vetere

Title: UAV Flight Operations Manager

Company: Aurora Flight Sciences



GoldenEye-50

Revised Program Letter For Experimental Certification (Golden Triangle Airport)

Prepared for
Federal Aviation Administration

Contract Number: N/A

Aurora Report Number: AR07-076

May 17, 2007

Prepared by
Aurora Flight Sciences Corporation
9950 Wakeman Drive
Manassas, Virginia 20110

www.aurora.aero

AURORA PROPRIETARY
THIS INFORMATION IS NOT TO BE DUPLICATED OR DISTRIBUTED TO OTHER
PARTIES WITHOUT THE EXPRESS WRITTEN CONSENT OF AURORA FLIGHT
SCIENCES CORPORATION

PROGRAM LETTER FOR UNMANNED AIRCRAFT SYSTEMS

REGISTERED OWNER NAME:	AURORA FLIGHT SCIENCES CORPORATION
AIRCRAFT BUILDER:	AURORA FLIGHT SCIENCES CORPORATION
REGISTERED OWNER ADDRESS:	9950 WAKEMAN DRIVE MANASSAS, VA 20110
YEAR MANUFACTURED:	2006
AIRCRAFT DESCRIPTION:	DUCTED FAN VTOL UNMANNED AERIAL VEHICLE
AIRCRAFT SERIAL NUMBER:	AU- 028
AIRCRAFT REGISTRATION:	N828AU
AIRCRAFT MODEL DESIGNATION:	GOLDENEYE 50 (GE-50)
ENGINE MODEL:	DESERT AIRCRAFT DA-50-R SINGLE- CYLINDER 2-CYCLE ENGINE
PROPELLER MODEL:	CUSTOM 7-BLADE LIFT FAN AURORA PART NUMBER GE50-PE712

1. DEFINE THE EXPERIMENTAL PURPOSE(S) UNDER WHICH THE AIRCRAFT IS TO BE OPERATED (14 CFR § 21.191).

In accordance with the above referenced regulation, Aurora Flight Sciences will operate the GoldenEye unmanned aerial vehicles for the purpose of research and development, crew training, and market surveys.

2. DESCRIBE THE PURPOSE/SCOPE OF THE EXPERIMENTAL PROGRAM FOR EACH 14 CFR § 21.191 EXPERIMENTAL PURPOSE SOUGHT (14 CFR §§ 21.193(b)(d)).

(1) Research and development – Aurora will fly the experimental GoldenEye vehicle to flight test the vehicle and to expand the flight envelope.

(2) Crew Training – Aurora will fly the vehicles as part of the company's training program to qualify crewmembers to operate the vehicles and to increase flying proficiency.

(3) Market Surveys – Aurora will fly the vehicle for sales demonstrations for potential customers.

3. DEFINE THE AREA(S) IN WHICH THE EXPERIMENTAL FLIGHTS WILL BE CONDUCTED.**a. Describe the areas over which the flights are to be conducted and address of base operation (14 CFR § 21.193(d)(3)).**

Flights will be conducted at Golden Triangle Regional Airport, Columbus, MS.

b. Identify all proposed flight areas using latitude and longitude on aeronautical maps.

Airport Name	Identifier	Coordinates
Golden Triangle Regional Airport Columbus, Mississippi	KGTR	33-45-05.0000N/ 088-58-70.0600W 33-44-89.9000N/ 088-58-71.8000W

a. Include information on airspeed, altitude, number of flight hours, number of flights and program duration for each test flight area.

Speed will be limited in smaller areas such as airports to a range of approximately 0- 5 kts with altitudes of 0 – 60 feet AGL.

	Airport/ Area	Airspeed Max	Altitude Max	Flight Hours (estimated)	# of Flights (estimated)	Program Duration
1	KGTR (Golden Triangle)	20 kts	150 AGL	0.5	2	1 week

b. What class of airspace will be used?

Aurora expects flying to occur in Class D airspace.

c. Will minimum fuel requirements of 14 CFR § 91.151 be met?

Current GE-50 flights have averaged 19 minutes with a ~6 minute or ~30% reserve. Fuel burn is a precisely monitored flight test parameter. Current operations typically take place in a very small geographic area under visual conditions where immediate landing is possible, eliminating the need to fly an additional 30 or 45 minutes to find a suitable landing site.

d. Will flight-testing include payload testing?

Yes. The current vehicle payload is an E/O camera. Flight testing may include the testing of other payloads, except weaponized payloads are not expected to be tested.

e. What considerations need to be taken with regard to payloads?

None.

f. Will the aircraft perform any aerobatic maneuvers?

The vehicles do not perform aerobatic maneuvers. Flight maneuvers for the GoldenEye 50 vehicle include vertical takeoff and landing, hover flight, turns about the vertical axis, and climbs and descents,.

g. Flight Conditions (e.g., VFR, IFR, VMS, etc.)

VFR

- 4. AIRCRAFT CONFIGURATION.** Attach three-view drawings or three-view dimensioned photographs of the aircraft (14 CFR § 21.193(b)(4)). Describe Unmanned Aircraft System configuration including ground control station. Include a description of aircraft/system performance characteristics including:
- See Figures (1 and 2) at the end of this document.

Aircraft system configuration is a ducted fan with torsionally disconnected "free wings". The engine for the GE-50 engine and propeller is enclosed in the fuselage.

The Ground control station consists of a laptop computer with proprietary software. It is connected to a datalink antenna. The ground control station (GCS) communicates with the air vehicle by means of a 900 MHz datalink. Payload imagery is sent from the aircraft to the GCS over a separate 2.4 GHz datalink. Flight commands and vehicle flight reports are up- and downlinked via the datalink. Vehicle state and health information is reported on the GCS laptop display to the air vehicle operator.

GoldenEye-50	
a. Wing span	4.4 feet
b. Length	2.9 feet
c. Powerplant	Desert Aircraft DA-50 single-cylinder 2-cycle engine
d. Max gross take off weight	21 lbs
e. Fuel capacity	30 fluid oz
f. Payload capacity	2 lbs
g. Max altitude	5000 feet
h. Endurance	20 minutes
i. Max airspeed	40 kts
j. Control/data frequencies	900MHz frequency-hopping spread- spectrum (command & control) 2.4GHz (payload data)
k. Guidance and navigation control	GuideStar 111mc (Athena Technologies Inc) GPS/INS/baro

5. INSPECTION AND MAINTENANCE (14 CFR Part 91 Subpart E).

- a. Describe the inspection and maintenance program that will be used to maintain the aircraft and related systems (includes ground stations and/or other support systems).**

Due to the current phase of the GE-50 program, inspection and maintenance program is currently a continuous maintenance program rather than one based on periodic inspections. Aurora maintenance procedures include thorough pre-flight and post-flight checklists which cover all systems. Maintenance is also performed on the vehicle between flights. These checklists will be provided for review.

- b. Provide copy of flight manual, if applicable, current weight and balance report, equipment list.**

The GE-50 Standard Operating Procedures and weight and balance information will be provided for review.

6. PILOT QUALIFICATION (14 CFR §§ 61.3, 61.5).**1. *Describe the qualifications for each pilot.***

Flights are supervised by at least one FAA certificated pilot. Aurora UAV operators have previous UAV experience through either commercial and/or military operations and many have been involved in the system design and development. All crewmembers undergo an Aurora qualification program.

Aurora Crewmember	Qualifications
Haase, Carrie	Commercial Pilot license/Airplane Single Engine Land/Airplane Multiengine Land with Instrument Rating – total time: 600 hours(est) Certified Flight Instructor Certificate (ASEL) Aurora trained flight director: 1 flt hr(GE80), 2 flt hrs(GE50) 24 hrs sim (GE-80)
Vetere, Nancy R.	Airline Transport Pilot license/Airplane Mutliengine Land – total time: 5050 hours (est) Training status for GoldenEye UAVs
Joy, Chris	Prior US Navy Pioneer UAV Instructor Pilot: 400 hours Aurora trained operator/flight director: 25 flt hours (GE50)
Han, Kevin	Aurora trained GoldenEye operator: 1 flt hr (GE80), 19 hrs sim (GE-80) Systems Engineer
Myrick, AJ	Prior US Army Shadow UAV Standardization Instructor Operator– est 450 hours Training status for Aurora GoldenEye UAVs
Uleck, Kevin	Aurora trained flight director/flight engineer
Novara, Jeremy	GE50 Technician Aurora trained UAV operator: 4.76 hours (GE50), 20 hrs sim (GE-50)
Cackowski, Marcus	Airframe & Powerplant License Aurora trained crew chief
Cooke, Peter	Lead GE-50 engineer/Aurora trained crew chief

b. Pilots must be qualified/certificated in the appropriate type of aircraft, i.e., rotorcraft, powered lift, fixed wing, etc.

Not applicable

c. Describe internal training program to qualify pilots.

Aurora's internal program consists of a company taught ground instruction, simulator training, ground and flight operations observation, and actual flight training under the supervision of an experienced UAV operator/instructor.

d. Describe the qualifications and training of observers.

Observers are Aurora trained and are knowledgeable on our operations and applicable flight rules.

- 7. AIRCRAFT MARKING (14 CFR Part 45).** All Unmanned Aircraft System (UAS) are required to be registered and identified with the registration number. Aircraft must be marked in accordance with part 45.

Aurora will be applying for a registration number for these vehicles.

- 8. ATC TRANSPONDER AND ALTITUDE REPORTING SYSTEM EQUIPMENT AND USE (14 CFR § 91.215).** Describe the aircraft altitude reporting system.

There is no transponder on Aurora GoldenEye vehicles.

- 9. METHOD FOR SEE AND AVOID (14 CFR § 91.113a).** In what manner, or by what means, will the requirement to "see and avoid" other aircraft be met? What performance will the chase plane have?

See and avoid capability is provided by the flight crew on the ground. Currently, the vehicle is maintained in line of sight at all times. The flight crew, complemented by range safety observers, scans the operations area for potential traffic conflicts and executes appropriate avoidance maneuvers if required. Aurora does not currently use a chase plane for GoldenEye flights.

- 10. SAFETY RISK MANAGEMENT.** An applicant must provide a safety checklist that identifies and analyzes the hazards of UAS operations that are described in the program letter. Additional information is available by contacting the FAA Aviation Safety Inspector.

A completed Safety Checklist will be submitted in conjunction with this document.

- 11. SYSTEM CONFIGURATION.** Provide a description of aircraft system configuration and all on-board and ground-based equipment.

GoldenEye-50	
On-board equipment	<ul style="list-style-type: none">• Desert Aircraft DA-50 single-cylinder 2-cycle engine• Athena Technologies GS111mc flight controls computer• 900MHz communications radio & antenna• Sentech STC620c camera• 2.4GHz video transmitter & antenna• Futaba S9650 and JR3781 servos
Ground-based equipment	<ul style="list-style-type: none">• Toughbook ruggedized laptop computer GCS• 900MHz Freewave radio for command & control, with antenna• VideoComm Technologies T-2495 2.4GHz video receiver & antenna• Optional second display case for engineering data and/or payload video• Strap-down platform for pre-launch run-up checks• Starter• Ground power / charger unit

12.SYSTEM SAFETY - FLIGHT TERMINATION AND LOST LINK. What is the expectation of aircraft "Flight" if fuel is starved? Briefly describe/explain aircraft lost link and emergency recovery procedures. Provide a brief explanation of the flight termination system (FTS).

Like most VTOL aircraft, GoldenEye aircraft do not glide. If fuel is starved, the vehicle will descend almost vertically. If the communications uplink is lost, the vehicle will hover in place (3 minutes for the GoldenEye-50) and then enter a vertical auto-land. Future software loads on the GoldenEye-50 may include the ability to climb or descend to a specified altitude, turn to a specified heading, and/or return to a specified waypoint (such as the takeoff location).

The GE-50 does not have an independent flight termination system, but it does have a "kill" command that may be issued by the flight crew. This command shuts down the aircraft's propulsion system, which will put the aircraft into a vertical descent and crash-landing.

13.COMMAND AND CONTROL. Provide a brief description of the system and/or procedures for command and control of the UAS.

GoldenEye-50 is operated using a touch screen laptop for command and control and the Ground Control Station (GCS) software was written by Athena Technologies. The vehicle can be operated manually, in which the operator specifies direction of flight (forward, backward, left, right) and groundspeed, altitude and climb rate. Mission Scripts (plans) can also be uploaded prior to flight. These plans may include waypoint navigation, altitude changes, groundspeed changes, etc.

The vehicle is launched and recovered via one-button "takeoff" and "land" commands from the GCS. "Takeoff" directs the airplane to launch vertically and climb to a specified altitude (currently 20m AGL, but configurable), then hover in place until additional commands are received from the ground control station. "Land" directs the airplane to descend vertically until the ground sensors trigger, at which time the engine shuts down and the flight controls system is shutdown.

14.CONTROL STATIONS. Provide a brief description of the ground/airborne stations used to control the UAS.

The GE50 system utilizes a ruggedized Toughbook touchscreen laptop computer for the ground control station. The laptop computer and the communications radios and antennas may be mounted in a vehicle or as a tabletop/handheld setup. There is also an additional computer that is sometimes used for additional data collection and system monitoring, but does not provide command and control capability.

15.CONTROL FREQUENCIES. Provide a description/listing of the frequencies used to control the UAS.

900 MHz (command and control)

2.4 GHz (payload video data, not used for control)

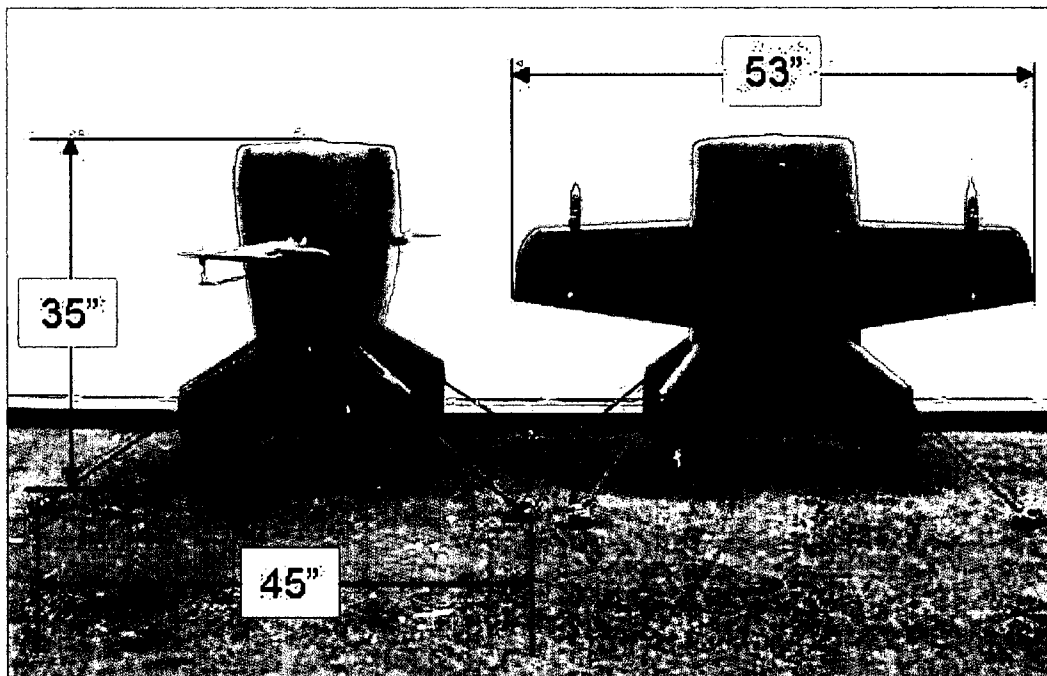


FIGURE (1) – GE50 Side and Bottom View

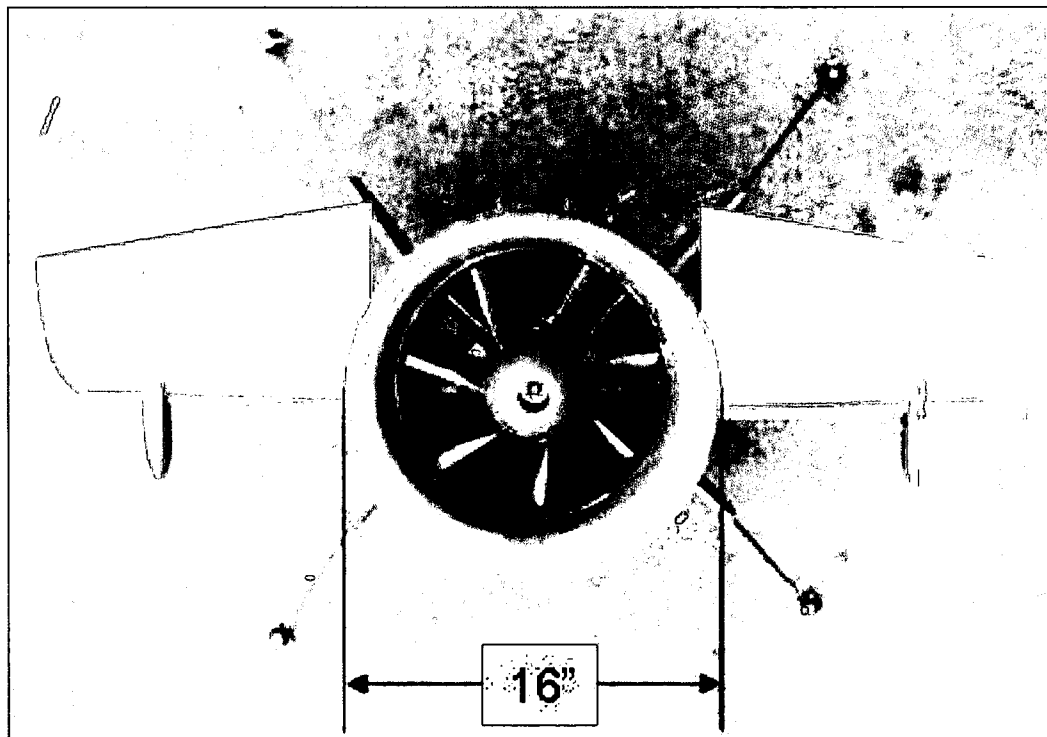


FIGURE (2) – GE-50 Front View



GoldenEye-50

Weight and Balance Report

Prepared for
Federal Aviation Administration

Contract Number: N/A

Aurora Report Number: AR07-073

May 1, 2007

Prepared by
Peter Cooke
Aurora Flight Sciences Corporation
9950 Wakeman Drive
Manassas, Virginia 20110

www.aurora.aero

AURORA PROPRIETARY

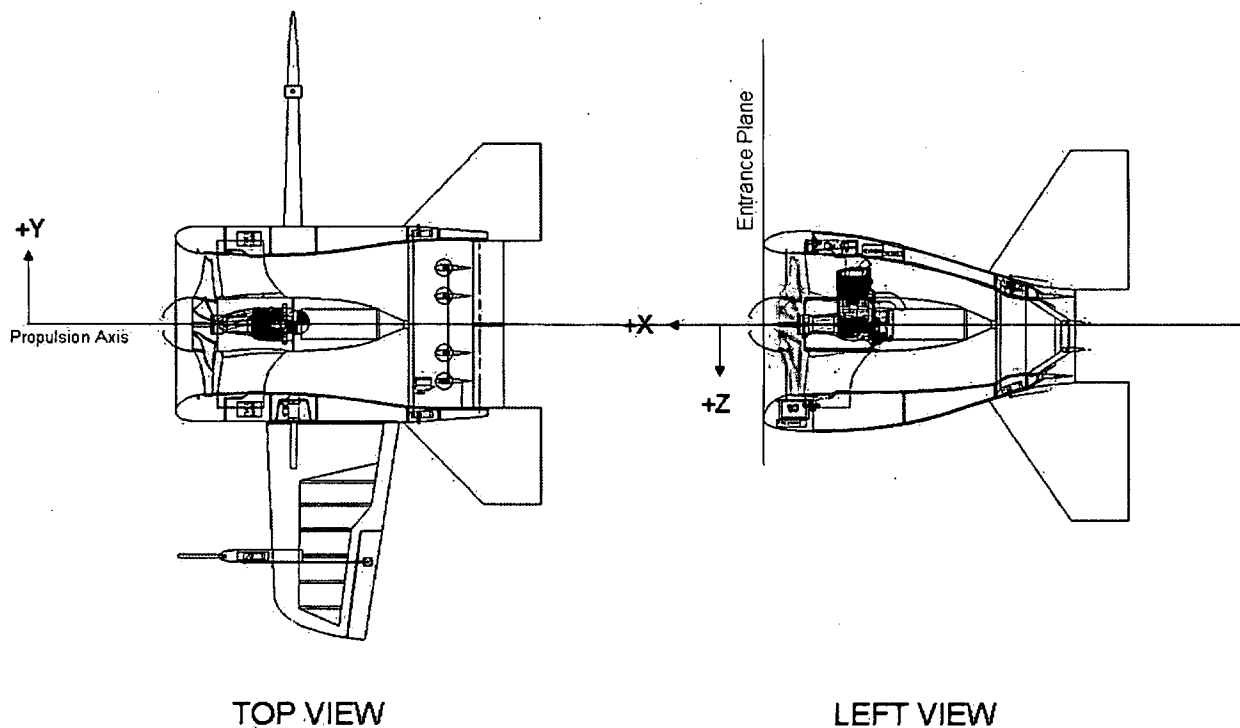
THIS INFORMATION IS NOT TO BE DUPLICATED OR DISTRIBUTED TO
OTHER PARTIES WITHOUT THE EXPRESS WRITTEN CONSENT OF
AURORA FLIGHT SCIENCES CORPORATION.

Maximum Gross Weight (with 30 fluid oz fuel): 20.7 lbs

Xcg range referenced from Entrance Plane (min, max) -9.9" -11.2"

Ycg range referenced from Propulsion Axis -0.1" 0.1"

Zcg range referenced from Propulsion Axis (min, max): 0.5" 1.1"





AU-028 (N828AU) Measured Weight and Balance

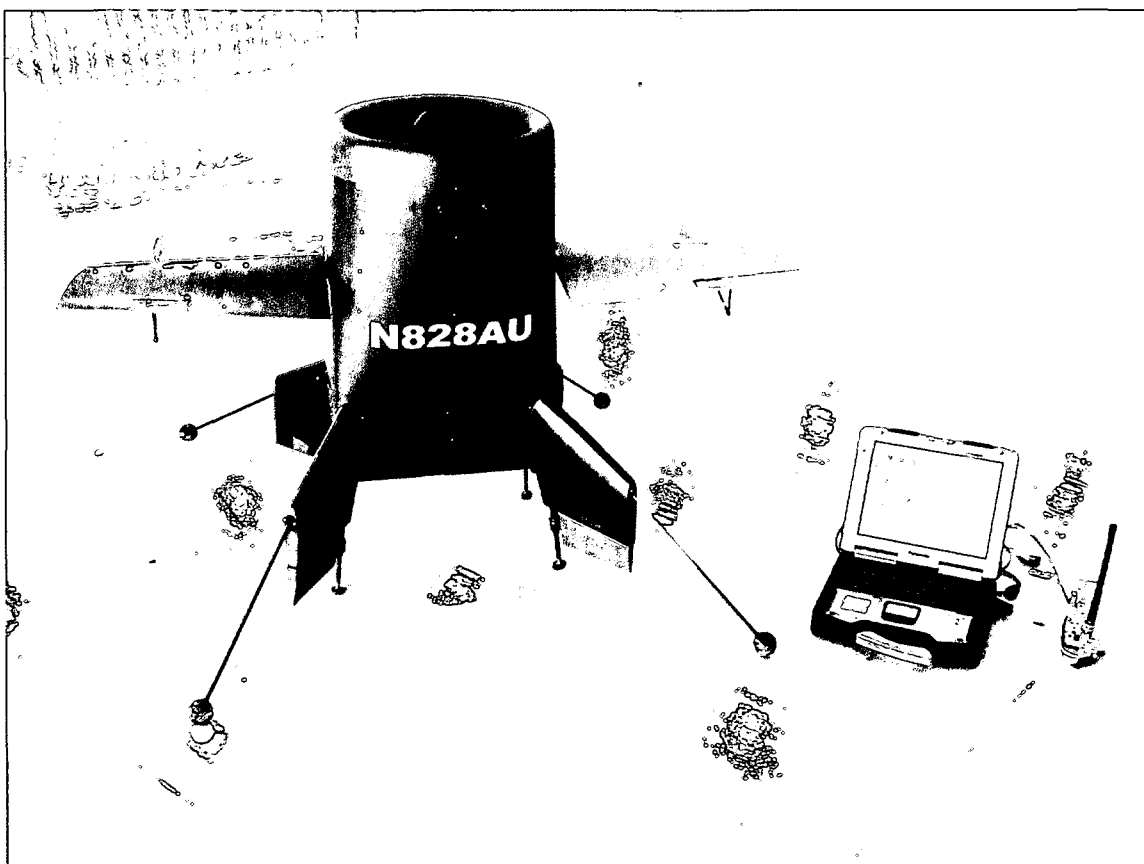
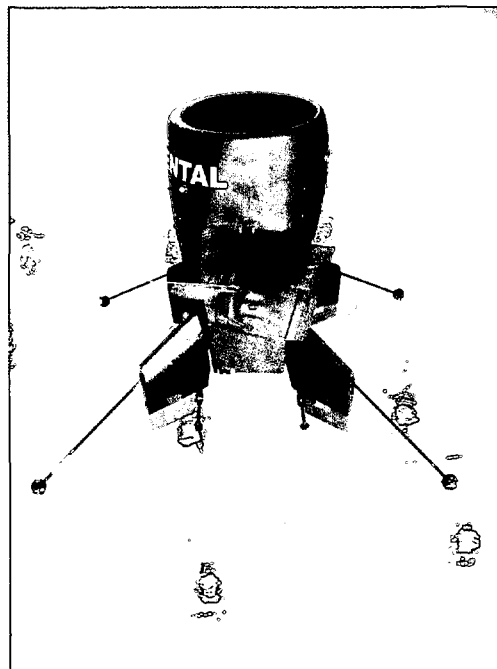
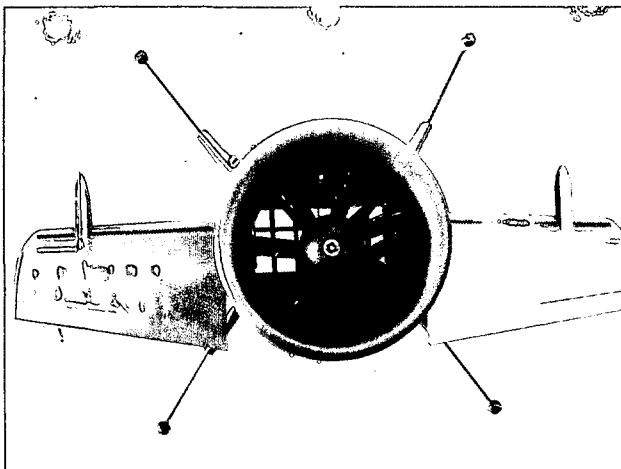
Gross Takeoff Weight: 18.84 lbs

Center of mass:

Xcg: -10.77"

Ycg: 0.00"

Zcg: 0.77"





U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

MAY 16 2007

Exemption No. 9290
Regulatory Docket No. FAA-2007-28070

Ms. Nancy R. Vetere
UAV Flight Operations Manager
Aurora Flight Sciences Corporation
9950 Wakeman Drive
Manassas, VA 20110

Dear Ms. Vetere:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

The Basis for Our Decision

On April 25, 2007, you petitioned the Federal Aviation Administration (FAA) on behalf of Aurora Flight Sciences Corporation (Aurora) for an exemption from §§ 91.9(b) and 91.203(a) and (b) of Title 14, Code of Federal Regulations (14 CFR). That exemption, if granted, would allow Aurora to operate unmanned aerial vehicles (UAVs) that do not carry and display the aircraft's airworthiness, certification, and registration documents required in part 91.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to Aurora.

The FAA has issued a grant of exemption in circumstances similar in all material respects to those presented in your petition. In Grant of Exemption No. 8607 (copy enclosed), the FAA found that it is unnecessary to carry and display the airworthiness, certification, and registration documents in unmanned aircraft systems for the operations described by the

E-2007-0595

petitioner. The original intent of the subject regulation was to display the airworthiness and registration documents so they would be easily available to FAA inspectors and passengers.

Having reviewed your reasons for requesting an exemption, I find that—

- they don't differ materially from those presented by the petitioner in the enclosed grant of exemption;
- the reasons stated by the FAA for granting the enclosed exemption also apply to the situation you present; and
- a grant of exemption is in the public interest.

Our Decision

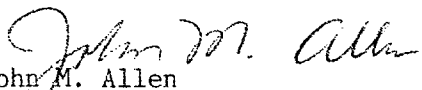
Under the authority contained in 49 U.S.C. 40113 and 44701, which the FAA Administrator has delegated to me, I hereby grant Aurora Flight Sciences Corporation an exemption from 14 CFR §§ 91.9(b) and 91.203(a) and (b) to the extent necessary to operate UAVs without carrying the airworthiness and registration documents required by part 91, subject to the conditions and limitations described below.

Conditions and Limitations

1. The documents required under §§ 91.9 and 91.203 must be available to the pilot in command of the UAVs any time the aircraft is operating.
2. Those documents required under § 91.9 or 91.203 must be made available within 10 days to any FAA, U.S. Department of Defense, or law enforcement official upon request.

This exemption terminates on May 31, 2009, unless sooner superseded or rescinded.

Sincerely,


John M. Allen
Acting Director, Flight Standards
Service

Enclosure



U.S. Department
of Transportation
**Federal Aviation
Administration**

May 11, 2007

Ms. Nancy R. Vetere
UAV Flight Operations Manager
Aurora Flight Sciences Corporation
9950 Wakeman Drive
Manassas, Virginia 20110

Dear Ms. Vetere:

Thank you for your letter dated May 9, 2007, requesting approval for a different marking procedure for Aurora's unmanned aircraft system. Title 14 Code of Federal Regulations § 45.22(d) permits persons to apply to the Administrator for a different marking procedure if it is impossible to mark an aircraft in accordance with §§ 45.21 and 45.23 through 45.33.

The marking information depicted in the presentation you provided with your letter has been reviewed. You are hereby authorized to identify the GE-50 and GE-80 aircraft with the following markings:

- For the GE-50: Nationality and Registration markings that are 2 inches tall and displayed horizontally when the aircraft is resting on its landing gear; the word "EXPERIMENTAL" in letters 2 inches tall.
- For the GE-80: Nationality and Registration markings that are 5 inches tall and displayed horizontally when the aircraft is resting on its landing gear; the word "EXPERIMENTAL" in letters 2 inches tall.


This marking procedure applies to all GE-50 and GE-80 aircraft of the same configuration for which future certification may be requested.

The following must be kept with the airworthiness certificate for each GE-50 and GE-80 aircraft:

- A copy of your original request letter dated May 9, 2007,
- A copy of the model-specific picture that was submitted with that letter, showing the size and location of the Nationality and Registration markings, and
- A copy of this response letter.

If there are any questions, please contact Mr. David Higginbotham at telephone 202-267-7525.

Sincerely,

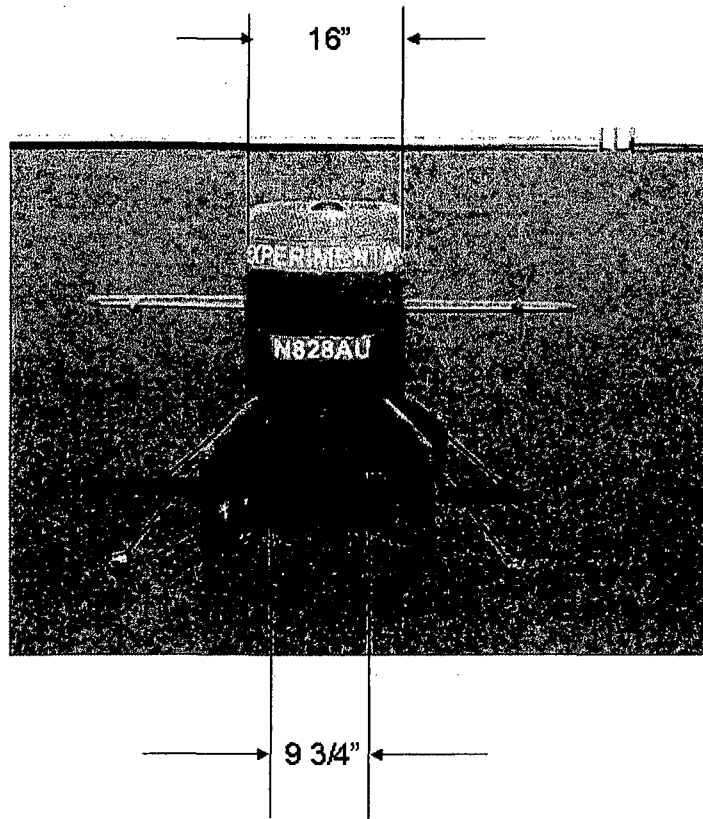

Frank P. Paskiewicz

Manager, Production and Airworthiness
Division, AIR-200

GE-50 Markings with Dimensions

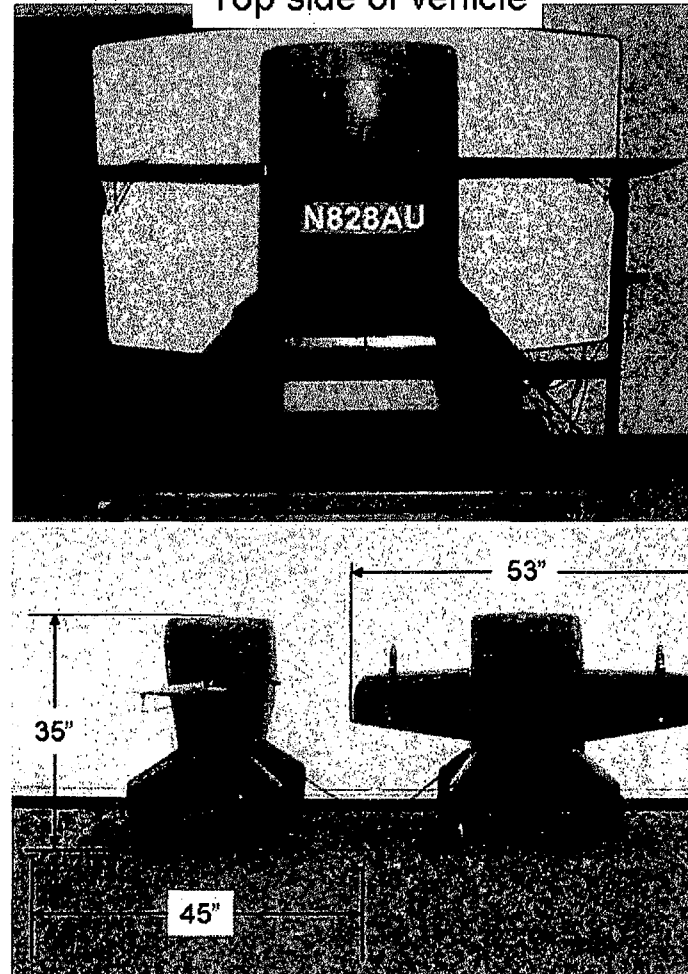


All letters are 2" tall.
Top side dimensions are same as
the lower for the registration #.



Bottom side of vehicle

Top side of vehicle

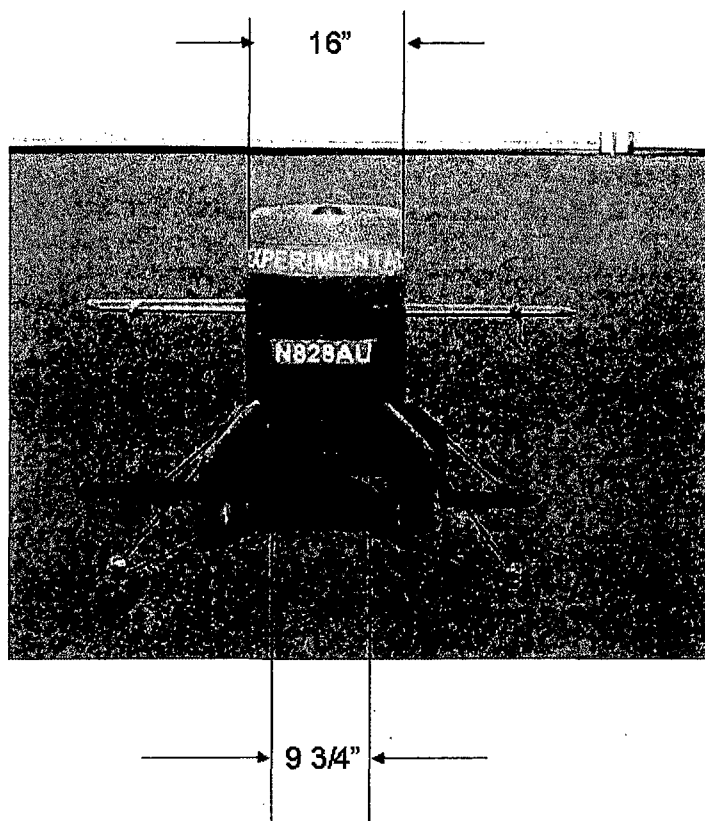


GE-50 Markings with Dimensions

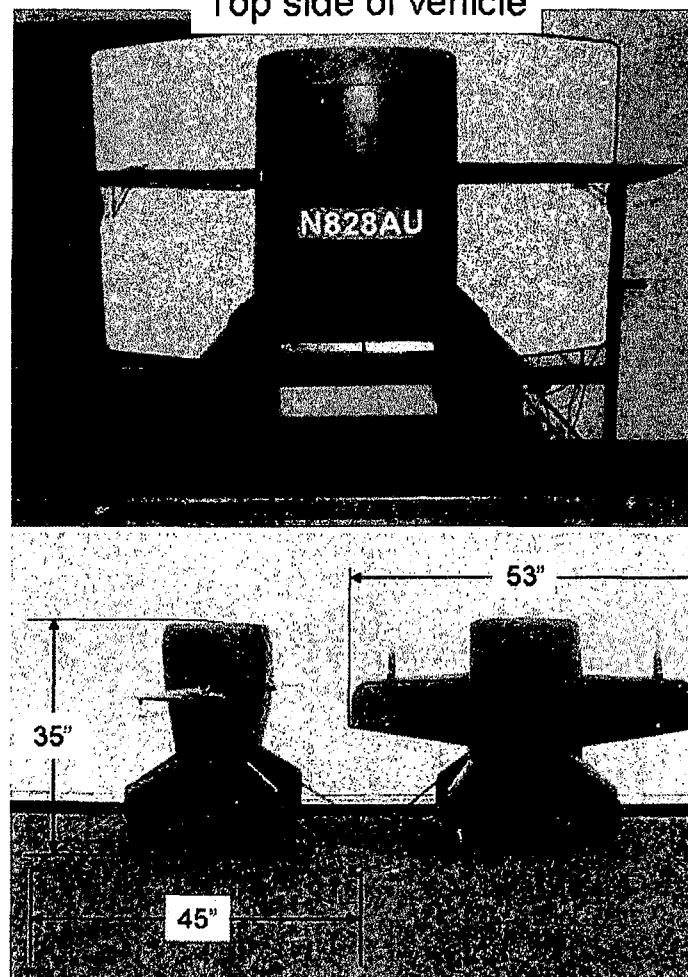


All letters are 2" tall.

Top side dimensions are same as the lower for the registration #.

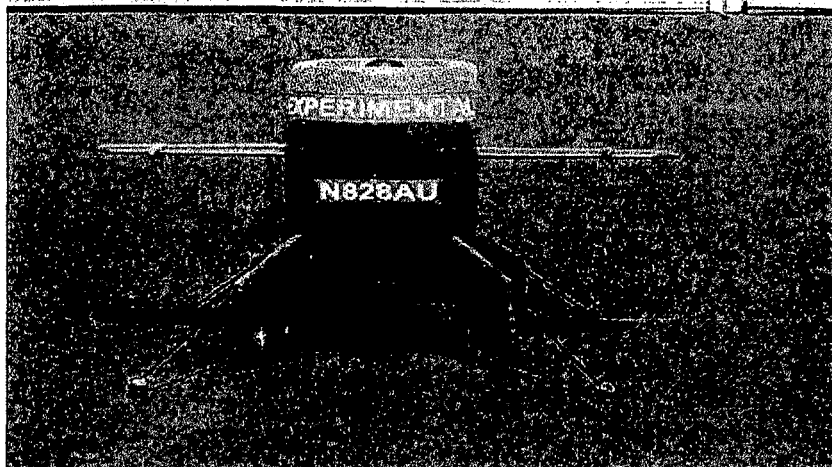


Top side of vehicle



Bottom side of vehicle


GoldenEye 50



Markings will not have green background, but will be white against the fuselage background color. Markings will be 2 inches tall due to the small size of the vehicle and will be applied vinyl. Some vehicles will have different paint schemes including a lip which is not orange.



UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION
SPECIAL AIRWORTHINESS CERTIFICATE

A	CATEGORY/DESIGNATION EXPERIMENTAL (UNMANNED AIRCRAFT)	
	PURPOSE Research and Development, Crew Training or Market Survey	
B	MANUFACTURER	NAME N/A
		ADDRESS N/A
C	FLIGHT	FROM N/A
		TO N/A
D	N— 828AU	SERIAL NO. AU-028
	BUILDER Aurora Flight Sciences	MODEL GE-50
E	DATE OF ISSUANCE 5/17/2007	
	EXPIRY 5/21/2008	
	OPERATING LIMITATIONS DATED 5/17/2007 ARE A PART OF THIS CERTIFICATE	
	SIGNATURE OF FAA REPRESENTATIVE:  James A. Stutson	DESIGNATION OR OFFICE NO. ATL-MIDO-CE42

Any alteration, reproduction or misuse of this certificate may be punishable by a fine not exceeding \$1,000 or imprisonment not exceeding 3 years, or both. THIS CERTIFICATE MUST BE DISPLAYED IN THE AIRCRAFT IN ACCORDANCE WITH APPLICABLE FEDERAL AVIATION REGULATIONS.

A	This airworthiness certificate is issued under the authority of the Federal Aviation Act of 1958, and the Federal Aviation Regulations (FAR).
B	This airworthiness certificate authorizes the manufacturer named on the reverse side to conduct production flight tests, and only production flight tests, of aircraft registered in his name. No person may conduct production flight tests under this certificate: (1) Carrying persons or property for compensation or hire; and/or (2) Carrying persons not essential to the purpose of the flight.
C	This airworthiness certificate authorizes the flight specified on the reverse side for the purpose shown in Block A.
D	This airworthiness certificate certifies that, as of the date of issuance, the aircraft to which issued has been inspected and found to meet the requirements of the applicable FAR. The aircraft does not meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention On International Civil Aviation. No person may operate the aircraft described on the reverse side: (1) except in accordance with the applicable FAR and <i>in accordance with conditions and limitations which may be prescribed by the Administrator as part of this certificate</i> ; (2) over any foreign country without the special permission of that country.
E	Unless sooner surrendered, suspended, or revoked, this airworthiness certificate is effective for the duration and under the conditions prescribed in FAR Part 21, Section 21.181 or 21.217.



U.S. Department
of Transportation

**Federal Aviation
Administration**

Atlanta Manufacturing Inspection District Office
One Crown Center
1895 Phoenix Blvd, St. # 275
Atlanta, GA 30349

EXPERIMENTAL - OPERATING LIMITATIONS
RESEARCH AND DEVELOPMENT, and/or CREW TRAINING.

REGISTERED OWNER NAME: AURORA FLIGHT SCIENCES	AIRCRAFT BUILDER: AURORA FLIGHT SCIENCES
REGISTERED OWNER ADDRESS: 9950 WAKEMAN DRIVE MANASSAS, VA 20110	YEAR MANUFACTURED: 2006
AIRCRAFT DESCRIPTION: DUCTED FAN VTOL	AIRCRAFT SERIAL NUMBER: AU-028
AIRCRAFT REGISTRATION: N828AU	AIRCRAFT MODEL DESIGNATION: GOLDEN EYE 50
	ENGINE MODEL: DESERT AIRCRAFT DA-50
	PROPELLER MODEL: CUSTOM 7-BLADE LIFT FAN

The following conditions and limitations apply to all Aurora Flight Sciences Golden Eye 50, Unmanned Aircraft System flight operations, while operating in the National Airspace System (NAS). These conditions and limitations must be accessible to the pilot in command at all times.

1. GENERAL:

a. For the purposes of this Special Airworthiness Certificate and Operating Limitations, the Golden Eye 50 (GE-50) Unmanned Aircraft System (UAS), owned and operated by Aurora Flight Sciences, is considered to be an integrated system. The system is composed of the GE-50 aircraft, S/N AU-28, unmanned aircraft (UA) pilot(s), UA control station(s) (fixed or mobile), telemetry, navigation and communications equipment to include ground and airborne equipment that is used for control of the GE-50 UA. The ground equipment used for communication with Air Traffic Control during UAS operations is considered part of the UAS.

RECEIVED ATLANTA

MAY 29 2007

1. The first part of the document is a list of the names of the persons who have been named in the proceedings.

2.

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b. Unless otherwise specified in this document, the UA Pilot-in-Command (PIC) and Aurora shall comply with all applicable sections and parts of 14 CFR including, but not limited to, parts 61 and 91.

c. No person may operate this UA for other than the purpose of Research and Development, Market Survey and/or Crew Training, to accomplish the flight operations outlined in Aurora Flight Sciences Program Letter dated May 17, 2007 which describes compliance with § 21.193(d), and has been made available to the pilot in command of the UA. In addition, this UA must be operated in accordance with applicable air traffic and general operating rules of part 91, and all additional limitations herein prescribed under the provisions of § 91.319(e).

d. The UA PIC must determine that the UA is in a condition for safe operation and in a configuration appropriate for the purpose of the intended flight.

e. No person may operate this UA to carry property for compensation or hire.

f. This UA must be marked with its U.S. Registration number in accordance with 14 CFR part 45 or exemption thereto.

g. This UA must display the word "EXPERIMENTAL" in accordance with § 45.23(b) or exemption thereto.

h. Prior to conducting initial GE-50 flight operations, Aurora must forward an electronic copy of the GE-50 Program Letter, Special Airworthiness Certificate, and Operating Limitations to: Linda Otting, FAA Air Traffic Representative, Eastern Service Center, System Support, 1701 Columbia Ave, College Park, GA 30337, telephone (404) 305-5577, email Linda.Otting@faa.gov.

i. Section 47.45 requires that the FAA Aircraft Registry must be notified within 30 days of any change in the aircraft registrant's address. Such notification is to be made by submitting AC Form 8050-1 to AFS-750 in Oklahoma City, Oklahoma.

2. PROGRAM LETTER: The Aurora Flight Sciences Program Letter, dated May 17, 2007, shall be used as a basis for the determination of the operating limitations prescribed in this document. All flight operations must be conducted in accordance with the provisions of these operating limitations.

3. AUTHORIZED FLIGHT OPERATIONS AREA:

a. The base of operations for the UA shall be:

Aurora Flight Sciences Corporation
2502 Airport Rd,
Columbus, MS 39701

b. The flight test operations area authorized for the UA at Golden Triangle Regional Airport are graphically depicted below. The coordinates for this area are:

Point	Latitude			Longitude		
	deg	min	sec	deg	min	sec
1	33	27	53.16	88	35	13.8
2	33	27	53.58	88	35	4.32
3	33	27	56.52	88	35	1.32
4	33	27	4.56	88	35	1.56
5	33	27	4.74	88	35	6.18
6	33	27	1.56	88	35	11.76
7	33	27	1.5	88	35	14.64

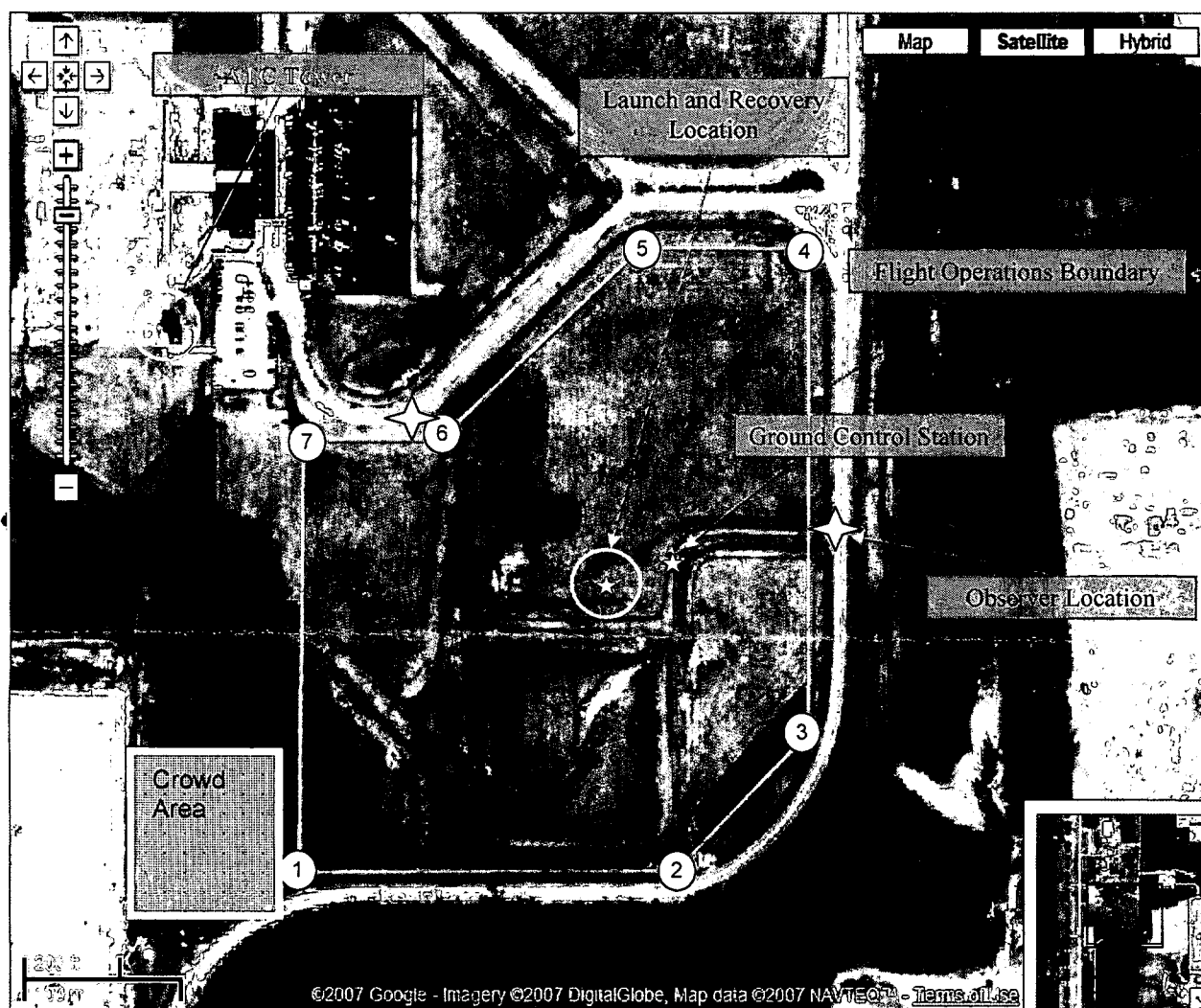


Figure 1. Proposed operations area at Golden Triangle Regional Airport.

c. Aurora is authorized to perform one test flight on May 18, 2007 to permit the FAA to validate the demonstration area. The duration of this flight test shall not exceed 5 minutes.

d. Flight operations for the flight demonstration on May 21, 2007 shall conform to the following requirements:

- 1) Aircraft hover only, at or below 60 feet Above Ground Level
- 2) Duration of entire flight operation not to exceed 5 minutes
- 3) Air Traffic Control will ensure the airspace is clear of traffic during flight operations in Class D airspace.
- 4) Aurora has immediate 2-way communication with ATC
- 5) Aircraft flight no closer than 300 feet to anyone on the ground
- 6) Designated crowd area shall be at least 500 feet from aircraft operations

e. The UA PIC shall ensure that all UA flight operations remain within the lateral and vertical boundaries of the flight test operations area at GTR. Furthermore, the UA PIC shall take into account all factors that may affect the capability of remaining within the flight test operations area at GTR. This includes, but is not limited to, considerations for wind, gross weight, and glide distances.

f. Any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at GTR shall be immediately concluded, and Air Traffic Control notified of the flight status. Aurora shall, at the conclusion of the flight, immediately notify the Unmanned Aircraft Program Manager AIR-160, of any flight operation that transgresses the lateral or vertical boundaries of the flight test operations area at GTR. The point of contact is Mr. Doug Davis. Mr. Davis can be reached at 202-385-4636 or email kenneth.d.davis@faa.gov.

g. Further flight operations shall not be conducted until the incident is reviewed by AIR-160, and authorization to resume operations is received.

4. UA PILOTS and OBSERVERS:

a. All flight operations shall have a designated UA Pilot-In-Command (PIC). Any additional UA pilot(s) assigned to a crew station during UA flight operations shall be considered a Supplemental UA Pilot. The UA PIC shall have responsibility over each flight conducted and be held accountable for the UA flight operation.

b. The UA PIC is responsible for the safety of the UA as well as persons and property along the UA flight path. This includes, but is not limited to, collision avoidance and the safety of persons and property in the air and on the ground. The UA PIC shall avoid densely populated areas (§ 91.319) and exercise increased vigilance when operating within or in the vicinity of published airway boundaries.

c. The UA PIC shall hold, at a minimum, an FAA Private Pilot certificate, with either an Airplane or Rotorcraft category, Single or Multiengine class ratings, or military equivalent, and have it in his/her possession.

d. The Supplemental Pilot need not be a certificated pilot, but must have successfully completed a recognized Private Pilot ground school or successfully completed the private pilot written test within 90 days of the date of these limitations.

e. The UA PIC shall have operational override capability over any Supplemental Pilot, regardless of position.

f. The UA PIC shall maintain currency in manned aircraft in accordance with § 61.57.

g. The UA PIC shall have a Flight Review in manned aircraft every 24 calendar months in accordance with § 61.56.

h. All UA Pilots shall maintain currency in unmanned aircraft in accordance with Aurora GoldenEye-50 Operator Training.

i. All UA pilots shall have a Flight Review in unmanned aircraft every 24 calendar months in accordance with Aurora company procedures.

j. All flight operations conducted shall have an Observer to perform traffic avoidance and visual observation to fulfill the "see and avoid" requirement of § 91.113.

k. All Observers shall:

1) Hold at a minimum, an FAA Private Pilot certificate or military equivalent (an Observer does not require currency as a pilot); or,

2) In lieu of a Pilot certificate, have successfully completed specific Observer training acceptable to the FAA.

l. Reserved

m. The UA PIC and Observer(s) must have in their possession a valid third class (or higher) airman medical certificate that has been issued under 14 CFR part 67.

n. UA Pilots and Observers shall perform crew duties for only one UA at a time.

o. All Observers must be thoroughly trained, familiar with, and possess, operational experience with the equipment being utilized for observation and detection of other aircraft for collision avoidance purposes as outlined in the Aurora Program Letter.

p. Observer Responsibilities: The task of the Observer is to provide the UA pilot(s) with instructions to maneuver the UA clear of any potential collision with other traffic. Observer duties require continuous visual contact with the UA at all times in such a manner as to be able to

discern UA attitude and trajectory in relation to conflicting traffic. At no time shall Observers conduct their duties more than 300 feet laterally from the UA.

5. COMMUNICATIONS:

- a. Aurora shall contact Air Traffic Control prior to flight operations.
- b. Appropriate Air Traffic frequencies shall be monitored during flight operations.
- c. All UAS crew positions must maintain two-way communications with each other during all operations. If unable to maintain two-way communication, the UA will be expeditiously returned to its base of operations while remaining within the Primary Containment Area, and conclude the flight operation.
- d. Spectrum used for operation and control of the UA must be approved by the Federal Communications Commission or other appropriate government oversight agency prior to operations being conducted.

6. FLIGHT CONDITIONS:

- a. All flight operations must be conducted during daylight hours in visual meteorological conditions (VMC), including cloud clearance minimums as specified in § 91.155. Flight operation in instrument meteorological conditions (IMC) is not permitted.
- b. The UA is prohibited from aerobatic flight, that is, an intentional maneuver involving an abrupt change in the UA's attitude, an abnormal acceleration, or other flight action not necessary for normal flight (§ 91.303).
- c. Flight operations must not involve carrying hazardous material or the dropping of any objects or external stores.
- d. Reserved
- e. Reserved.
- f. Reserved.
- g. Reserved.
- h. Aurora Flight Sciences must request the issuance of a Notice to Airman (NOTAM) through the local Automated Flight Service Station at least twenty-four 24 hours prior to flight operation.

7. FLIGHT TERMINATION & LOST LINK PROCEDURES:

- a. In accordance with Aurora Flight Sciences Program Letter, dated May 17, 2007, flight termination must be initiated at any point that safe operation of the UA cannot be maintained.

b. In the event of lost link, the UA must provide a means of automatic recovery that ensures airborne operations are predictable and that the UA remains within the flight test area. The observer will be immediately notified of the lost link condition and the expected UA response.

8. MAINTENANCE:

a. The GE-50 UAS must not be operated unless it is inspected and maintained in accordance with the GE-50 Preflight Inspection report AR07-069, and the GE-50 Postflight Inspection report AR07-070 both dated August 9, 2005 or later FAA-accepted revision. Maintenance must be recorded in the UAS maintenance records.

b. No person may operate this UAS unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with, FAA-accepted, GE-50 Preflight Inspection report AR07-069, and the GE-50 Postflight Inspection report AR07-070 dated August 9, 2005, and was found to be in a condition for safe operation. This inspection will be recorded in the UAS maintenance records.

c. Only those individuals authorized by Aurora Flight Sciences, and acceptable to the FAA, may perform inspections required by these operating limitations.

d. Inspections of the UAS must be recorded in the UAS maintenance records showing the following, or a similarly worded, statement: "I certify that this UAS has been inspected on [insert date] in accordance with the scope and detail of the GE-50 Preflight Inspection report AR07-069, and the GE-50 Postflight Inspection report AR07-070 dated August 9, 2005." The entry will include the UAS's total time-in-service, and the name and signature of the person performing the inspection and the date the inspection was performed.

e. UAS instruments and equipment installed must be inspected and maintained in accordance with the requirements of the GE-50 Preflight Inspection report AR07-069, and the GE-50 Postflight Inspection report AR07-070 dated August 9, 2005. Any maintenance or inspection of this equipment must be recorded in the UAS maintenance records.

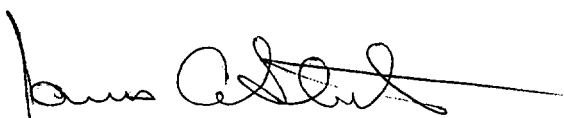
f. Reserved.

9. EQUIPAGE:

The GE-50 Ground Control Station will be equipped with two-way communications equipment allowing for communications between the UA pilot and Air Traffic Control.

10. REVISIONS and OTHER PROVISIONS:

No changes are authorized to the aircraft configuration for the flight tests.



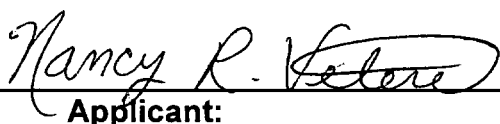
James Stutson
Aviation Safety Inspector
Atlanta Manufacturing Inspection District Office
One Crown Center
1895 Phoenix Blvd, St. # 275
Atlanta, GA 30349

Date: May 17, 2007

The Special Airworthiness Certificate and accompanying Operating Limitations expire on May 21, 2007.

I certify that I have read and understand the operating limitations, and conditions, that are a part of the Special Airworthiness Certificate; FAA Form 8130-7 issued on May 17, 2007, for the purpose of Research and Development, Market Survey and/or Crew Training.

This Special Airworthiness Certificate is issued for the Aurora Flight Sciences Systems, UA model "GE-50," serial number AU-028, registration number N828AU.


Applicant:

Date: May 17, 2007

Name: Nancy R. Vetere

Title: UAV Flight Operations Manager

Company: Aurora Flight Sciences

